

2015 Capitalization Rate Study



State-Assessed Properties Division
John K. Thompson, Chief

Lien Date 2015

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Executive Summary

“The income approach to value includes any method of converting an income stream into a present value estimate (i.e., an indicator of current fair market value). The income approach is also called the capitalization approach because capitalization is the process of converting an expected income into an indicator of value.

The methods or techniques used in the income approach may be relatively simple (e.g., income or rent multipliers and direct capitalization), or more complex (e.g., various yield capitalization techniques). All of these methods are referred to as capitalization techniques because they convert an expected future income stream into a present value estimate.

The income approach requires careful application because small variations in its key variables (capitalization rate, duration of income stream, estimated income and expenses, etc.) will be mathematically leveraged into a wide range of estimated value. This is particularly true for the capitalization rate variable. The reliability of the income approach is no greater than the validity of the assumptions used to estimate the key variables. The mathematical techniques used in the approach, while sometimes complicated, are merely tools for converting these assumptions into an estimate of current market value.”¹

I. Authority for Capitalization Rate Study

Property Tax Rule 8 (g) (2) provides the authority for the method in which the capitalization rates were developed in this study. The rule states “the capitalization rate may be developed...

By deriving a weighted average of the capitalization rates for debt and for equity capital appropriate to the California money markets (the band-of-investment method) and adding increments for expenses that are excluded from outgo because they are based on the value that is being sought or the income that is being capitalized. The appraiser shall weight the rates for debt and equity capital by the respective amounts of such capital he deems most likely to be employed by prospective purchasers.”

II. Band of Investment Approach

In its simplest form, the band of investment method assumes that a purchaser would pay cash (or equity) for a portion of the property and would borrow the balance of the purchase price. For example:

Debt	30%	x	Cost of Debt	7%	=	2.1%
Equity	70%	x	Cost of Equity	12%	=	8.4%
Weighted Average Cost of Capital						<u>10.5%</u>

¹ Assessors’ Handbook 501, Basic Appraisal, Revised January 2002

Executive Summary

This booklet contains a study for each of the major state assessee industry groups² in California. Industry data was compiled by groups with similar Value Line financial ratings. Local exchange, wireless and interexchange industries have been combined into one telecommunications study.

Generally accepted procedures were used to estimate the cost of capital for debt and equity. The long term debt cost is the cost for a particular risk class of debt on the lien date. The equity rate reflects the rate of return or compensation that will satisfy the risk that a prospective purchaser would anticipate if a property purchase decision was made. The rates chosen are the result of analysis of economic conditions and financial data listed in the supporting schedules and are the product of the staff's informed judgment.

The rates derived in this study are basic capitalization (or discount) rates that represent the after-tax return on investment only. Any increments required to be added by Property Tax Rule 8(g)(2), such as income or ad valorem tax components, are in addition to the rates listed.

A. *Capital Structure - Prospective Purchaser vs. Company Specific*

State assesses often ask why the Board does not use the current capital structure of individual companies in the band-of-investment method. As explained in Rule 8 (g)(2), the appraiser shall weight the rates of debt and equity capital by the respective amounts of such capital deemed most likely to be employed by a prospective purchaser.

Therefore, the capital structure contemplated is a representative or typical structure of an industry group of companies with a similar bond rating, not that of the present owner. The objective of doing so is to strike an optimum capital structure from the perspective of a potential investor.

B. *Company Specific Debt Rates*

In many cases the debt component of the capital structure for a prospective purchaser and the individual company being assessed may be similar. In cases where, in the judgement of staff, the debt ratings of the individual companies being assessed and the debt ratings of prospective purchasers are similar, the company-specific bond rating has been used to develop the appropriate debt component of the recommended capitalization rate. In cases where rate-base regulated companies have embedded debt with rates higher than the market rates at the lien date, a revenue adjustment may be indicated in order to match the revenue expected by a prospective purchaser if the purchaser's revenue would be determined by those market rates.

² Gas, Electric & Water; Natural Gas Transmission; Electric Generation; Telecommunications (Local Exchange, Interexchange, Wireless); Pipeline; Railroad

Executive Summary

C. Impact of Holding Companies on Determination of Capital Structure

Many of the larger state assesseees are subsidiaries of their holding company. Stock purchases related to a subsidiary must be made through the parent holding company. Since there is no direct market data for state assesseees that are subsidiaries of a holding company, staff must rely, in great part, upon market data related to the holding company.

III. Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM) is a widely accepted theory used to estimate the cost of equity capital. In the application of CAPM, the most sensitive component affecting the outcome is the estimate of the beta³ coefficient. The choice of different time frames and frequencies of measurement in the calculation of the beta can produce significantly different results. Another factor in the use of beta is the choice of whether to use an unadjusted beta or a beta adjusted to reflect the fact that betas tend to revert to the mean over time. In this study, three betas were obtained from separate sources: one adjusted (Value Line) and two unadjusted. Generally the betas from the three sources are averaged to establish the beta used to estimate the cost of equity capital for a specific industry. However, the average beta for highly regulated industries, such as gas or electric transmission and distribution, tend to understate the risk inherent in those securities. Accordingly, for companies in highly regulated environments, the Value Line adjusted beta was chosen as a better estimate of the relative risk in the calculation of the required equity return.

IV. Flotation Costs

When new issues of both debt and equity capital are sold to investors, the issuing company incurs transaction costs such as underwriting fees, legal expenses, and prospectus preparation costs. These costs of issuing securities are known as flotation costs. Much like loan fees or points on a mortgage, flotation costs effectively reduce the net proceeds that a firm will receive from issuing securities. The cost of capital is adjusted upward to reflect the expected flotation costs incurred to issue securities. Since the flotation costs are reflected in the weighted average cost of capital, the flotation costs should not be allowed as expenses in projecting cash flows to be capitalized. Each basic capitalization rate in this study has been adjusted to reflect flotation costs.

V. Utilization of Other Studies and Data

Staff appraisers reviewed data and capitalization rate studies submitted by assesseees and interested parties in addition to a review of recent regulatory rate case filings and decisions, and where appropriate, used this information in the development of the staff derived rates.

The capitalization rates published in this study are intended to be applied to the unitary operations of the companies subject to assessment by the California State Board of Equalization.

³ The covariance of the returns of a security regressed against the returns of the overall market - a measurement of relative volatility

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Gas, Electric and Water Companies**

SBE No.	Company Name	Ratings			Capital Structure			Rates of Return			Basic Cap Rate
		Financial	Preferred Stock	Bond	Common Equity	Preferred Stock	Debt	Common Equity	Preferred Stock	Debt	
Gas and Electric Companies											
141	San Diego Gas & Electric Company	A	A3	A1	52%	3%	45%	10.79%	6.33%	4.13%	7.66%
148	Southern California Edison Company	A	Baa1	A2	48%	9%	43%	10.94%	6.15%	4.15%	7.59%
135	Pacific Gas and Electric Company	B+	Baa2	A3	52%	1%	47%	10.89%	6.33%	4.42%	7.80%
106	PacifiCorp	Not Rated	Baa2	A3	52%	1%	47%	11.52%	6.33%	4.42%	8.13%
146	Sierra Pacific Power Company	Not Rated		Baa1	52%	1%	47%	11.52%	7.04%	4.68%	8.26%
125	Terra-Gen Dixie Valley, LLC	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
163	Liberty Utilities (Calpeco Electric), LLC	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
191	Arizona Public Service Company	Not Rated		A3	55%		45%	11.52%		4.42%	8.32%
119	Trans Bay Cable LLC	Not Rated		Not Rated	55%		45%	14.14%		4.42%	9.76%
156	DATC Path 15, LLC	Not Rated		A3	55%		45%	14.14%		4.42%	9.76%
	Electric Cooperatives	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
Natural Gas Distribution and Storage Companies											
149	Southern California Gas Company	A	A3	A1	52%	2%	46%	10.58%	6.10%	4.13%	7.52%
152	Southwest Gas Corporation	B++		Baa1	55%		45%	10.58%		4.68%	7.92%
192	Alpine Natural Gas Operating Company No. One LLC	Not Rated		Not Rated	55%		45%	12.30%		5.09%	9.06%
194	West Coast Gas Company, Inc.	Not Rated		Not Rated	55%		45%	12.30%		5.09%	9.06%
104	Central Valley Gas Storage LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
121	Gill Ranch Storage, LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
195	Wild Goose Storage, LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
198	Lodi Gas Storage, LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
Water Company											
101	Golden State Water Company	A		A2	55%		45%	9.87%		4.15%	7.30%

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Natural Gas Transmission Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
153	Transwestern Pipeline Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
180	North Baja Pipeline, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
187	Mojave Pipeline Company, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
188	Kern River Gas Transmission Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
189	Standard Pacific Gas Line, Incorporated	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
190	Tuscarora Gas Transmission Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
196	Questar Southern Trails Pipeline Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
197	El Paso Natural Gas Company, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Electric Generation Facilities**

Facility Type	Ratings		Capital Structure		Rates of Return		Basic Cap Rate ³
	Financial	Bond	Common Equity	Debt	Common Equity	Debt	
Modern Electric Generation Technology ¹	B	B2	60%	40%	13.09%	6.36%	10.40%
Older Electric Generation Technology ²	B	B2	60%	40%	15.18%	7.38%	12.06%

¹ Modern Electric Generation Technology - Generally high efficiency combined-cycle or simple cycle gas turbine electric generation facilities incorporating contemporary generation technologies.

² Older Electric Generation Technology - Generally older steam turbine electric generation facilities that were sold off by vertically integrated electric utilities and for which no replacements, other than for routine maintenance have been made.

³ Staff may adjust the rates stated above if the specific situation of a facility warrants an adjustment to its basic capitalization rate.

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Telecommunications Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
Local Exchange Companies								
279	Pacific Bell Telephone Company	A++	A2	70%	30%	12.09%	3.95%	9.65%
201	Verizon California, Inc.	A++	A3	70%	30%	12.09%	4.21%	9.73%
284	Citizens Telecommunications Company of California, Inc.	B	Not Rated	65%	35%	13.14%	4.88%	10.25%
294	SureWest Telephone	C++	Not Rated	65%	35%	13.14%	4.88%	10.25%
	Other Local Exchange Companies	Not Rated	Not Rated	65%	35%	15.50%	5.03%	11.83%
Wireless Companies								
2606	AT&T Mobility LLC	A++	A2	70%	30%	11.57%	3.95%	9.28%
2532	Los Angeles SMSA Ltd., Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2552	Fresno MSA Limited Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2559	Cellco Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2669	California RSA #4 Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2748	T-Mobile West, LLC	B	Not Rated	65%	35%	12.88%	5.03%	10.13%
2720	Sprint Telephony PCS, L.P.	C++	B3	65%	35%	14.71%	5.74%	11.57%
	Other Wireless Companies ¹	Not Rated	Not Rated	55%	45%	16.81%	7.26%	12.51%
	Wireless Reseller Companies	Not Rated	Not Rated	55%	45%	18.90%	7.77%	13.89%
Interexchange Companies								
2310	AT&T Communications	A++	A2	70%	30%	12.88%	3.95%	10.20%
2274	MCI Communications Services, Inc.	A++	A3	70%	30%	12.88%	4.21%	10.28%
2372	MCI Metro Access Transmission Services, LLC	A++	A3	70%	30%	12.88%	4.21%	10.28%
2463	CenturyLink, Inc.	B++	Baa3	65%	35%	14.45%	4.88%	11.10%
2014	Sprint Communications Company, L.P.	C++	B3	60%	40%	16.81%	5.74%	12.38%
7761	Level 3 Communications, LLC	C++	Caa2	60%	40%	16.81%	7.26%	12.99%
	Other Interexchange Carriers	Not Rated	Not Rated	55%	45%	21.52%	7.26%	15.10%
	Other Interexchange Resellers	Not Rated	Not Rated	55%	45%	24.66%	7.77%	17.06%

¹ Includes Radio Telephone and Paging Companies

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Pipeline Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Equity	Debt	
402	CALNEV Pipe Line, LLC	NR-1	NR-b	70%	30%	12.57%	4.77%	10.23%
461	SFPP, L.P.	NR-1	NR-b	70%	30%	12.57%	4.77%	10.23%
479	Chevron Pipe Line Company	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
480	Phillips 66 Pipeline LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
486	Pacific Pipeline System LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
492	San Pablo Bay Pipeline Company LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
	Other Pipeline Companies	NR-3	NR-c	70%	30%	14.14%	5.78%	11.63%

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Railroad Companies**

SBE No.	Company Name			Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
804	BNSF Railway Company	A++	Baa2	80%	20%	12.83%	4.77%	11.21%
843	Union Pacific Railroad Company	A++	Baa2	80%	20%	12.83%	4.77%	11.21%
802	Central Oregon & Pacific Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
810	California Northern Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
813	Pacific Harbor Lines	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
822	Pacific Sun Railroad, LLC	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
826	Sacramento Valley Railroad, LLC	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
850	Modesto & Empire Traction Company	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
865	San Diego & Imperial Valley Railroad Co. Inc.	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
878	Stockton Terminal and Eastern Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
882	Trona Railway Co.	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
897	San Joaquin Valley Railroad Company	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
899	Arizona & California Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
	Other Railroad Companies	NR-2	NR-2	60%	40%	15.18%	7.31%	12.03%

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Gas, Electric and Water Companies**

SBE No.	Company Name	Ratings			Capital Structure			Rates of Return			Basic Cap Rate
		Financial	Preferred Stock	Bond	Common Equity	Preferred Stock	Debt	Common Equity	Preferred Stock	Debt	
Gas and Electric Companies											
141	San Diego Gas & Electric Company	A	A3	A1	52%	3%	45%	10.79%	6.33%	4.13%	7.66%
148	Southern California Edison Company	A	Baa1	A2	48%	9%	43%	10.94%	6.15%	4.15%	7.59%
135	Pacific Gas and Electric Company	B+	Baa2	A3	52%	1%	47%	10.89%	6.33%	4.42%	7.80%
106	PacifiCorp	Not Rated	Baa2	A3	52%	1%	47%	11.52%	6.33%	4.42%	8.13%
146	Sierra Pacific Power Company	Not Rated		Baa1	52%	1%	47%	11.52%	7.04%	4.68%	8.26%
125	Terra-Gen Dixie Valley, LLC	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
163	Liberty Utilities (Calpeco Electric), LLC	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
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156	DATC Path 15, LLC	Not Rated		A3	55%		45%	14.14%		4.42%	9.76%
	Electric Cooperatives	Not Rated		Not Rated	55%		45%	11.52%		4.42%	8.32%
Natural Gas Distribution and Storage Companies											
149	Southern California Gas Company	A	A3	A1	52%	2%	46%	10.58%	6.10%	4.13%	7.52%
152	Southwest Gas Corporation	B++		Baa1	55%		45%	10.58%		4.68%	7.92%
192	Alpine Natural Gas Operating Company No. One LLC	Not Rated		Not Rated	55%		45%	12.30%		5.09%	9.06%
194	West Coast Gas Company, Inc.	Not Rated		Not Rated	55%		45%	12.30%		5.09%	9.06%
104	Central Valley Gas Storage LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
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195	Wild Goose Storage, LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
198	Lodi Gas Storage, LLC	Not Rated		Not Rated	60%		40%	14.14%		6.08%	10.92%
Water Company											
101	Golden State Water Company	A		A2	55%		45%	9.87%		4.15%	7.30%

**2015 Capitalization Rate Study
Gas, Electric and Water Companies
Industry Notes**

- In establishing the capital structures for the rate-regulated utilities, staff considered the decisions of the California Public Utilities Commission (CPUC). For the non-rate-regulated utilities, the capital structures were developed based on the financial data collected and the relative risks of the utilities sampled in the Capitalization Rate Study.
- Staff considered the following in the development of equity rates:
 1. CPUC-authorized rates of return
 2. FERC-authorized rates of return
 3. Discounted Cash Flow Model
 4. Capital Asset Pricing Model – Ex Post and Ex Ante risk premiums
- Staff considered the following in the development of debt rates:
 1. Moody's Utility Bond Yield Spreads
 2. The debt rates that a prospective purchaser would expect at lien date

**2015 Capitalization Rate Study
Gas and Electric Companies
Flotation Cost Adjustment**

Equity				Preferred Stock				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A	10.30%	4.50%	10.79%	A3	6.22%	1.70%	6.33%	Aa3	4.03%	1.70%	4.10%
A	10.45%	4.50%	10.94%	Baa1	6.05%	1.70%	6.15%	A1	4.06%	1.70%	4.13%
B+	10.40%	4.50%	10.89%	Baa2	6.22%	1.70%	6.33%	A2	4.08%	1.70%	4.15%
Not Rated	11.00%	4.50%	11.52%	Not Rated	6.92%	1.70%	7.04%	A3	4.34%	1.70%	4.42%
Not Rated	13.50%	4.50%	14.14%					Baa1	4.60%	1.70%	4.68%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs
 f = Flotation cost as a percentage of the value of securities issued

**2015 Capitalization Rate Study
Gas and Electric Companies
Summary of Rates of Return**

Common Equity		Preferred Stock		Bonds		
Value Line Rating	Rate of Return ¹	Moody's Bond Rating	Rate of Return ²	Moody's Bond Yields	Moody's Rating	Rate of Return ³
A	10.30%	A3	6.22%	Aaa=N/A	Aaa2	3.39%
					Aaa3	3.53%
A	10.45%	Baa1	6.05%		Aa1	3.67%
				Aa=3.81	Aa2	3.81%
B+	10.40%	Baa2	6.22%		Aa3	3.83%
					A1	3.86%
Not Rated	11.00%	Not Rated	6.92%	A=3.88	A2	3.88%
					A3	4.14%
Not Rated	13.50%				Baa1	4.40%
				Baa=4.66	Baa2	4.66%

¹ The Rate of Return on Common Equity was developed by staff based on the relative risks of the utilities in conjunction with the results of various financial models and pertinent information from different sources. Consideration was also given to the latest decisions of the California Public Utilities Commission. For 2015 the return on equity (ROE) and return on rate base (ROR) for Pacific Gas and Electric Company are 10.40% and 8.06%, respectively; for Southern California Edison Company, the ROE and ROR are 10.45% and 7.98%, respectively (D 12-12-034); for San Diego Gas & Electric Company, the ROE and ROR are 10.30% and 7.79%, respectively (D 12-12-034).

² The Rate of Return on Preferred Stocks was developed by staff based on the relative risks of the utilities. Consideration was given to the latest decisions of the California Public Utilities Commission.

³ The Rates of Return on Bonds were based on the 2015 Moody's "Utility Bond Yields" reports. Because Moody's assigns yields only to groups Aaa, Aa, A and Baa, staff interpolated the difference between these groups to further refine the ratings.

2015 Capitalization Rate Study
Gas and Electric Companies
Capital Asset Pricing Model - Ex Ante

Component	Value Line Ratings	
	A+, A	B++, B+, B
Expected Future Return, S&P 500	11.15%	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%	2.75%
Risk Premium	8.40%	8.40%
Beta ²	0.74	0.76
Adjusted Risk Premium	6.22%	6.35%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%	2.75%
Projected Return on Common Equity	8.97%	9.10%

¹ WSJ.com, December 31, 2014

² The estimated betas were derived from a sample of gas and electric companies with similar ratings.

2015 Capitalization Rate Study
Gas and Electric Companies
Capital Asset Pricing Model - Ex Post

Component	Value Line Ratings	
	A+, A	B++, B+, B
Common Stock Returns, S&P 500 (1928 - 2014) ¹	11.53%	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	5.28%	5.28%
Risk Premium	6.25%	6.25%
Beta ²	0.74	0.76
Adjusted Risk Premium	4.63%	4.73%
Risk Free Return 30 Year Treasury Bonds ³	2.75%	2.75%
Projected Return on Common Equity	7.38%	7.48%

¹ Damodaran Online, January 5, 2015

² The estimated betas were derived from a sample of gas and electric companies with similar ratings.

³ WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Gas and Electric Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DvYld+ DvGrth (h+i)	DvYld+ ErngsGr (h+j)
A+	Consolidated Edison, Inc.	66.01	3.95	3.90	2.52	2.58	3.91%	2.00%	2.47%	5.98%	5.91%	6.38%
A+	OGE Energy Corp.	35.48	2.10	1.95	0.95	1.05	2.96%	9.50%	6.37%	5.92%	12.46%	9.33%
A+	Pinnacle West Capital Corp.	68.31	3.85	3.65	2.33	2.44	3.57%	3.00%	3.87%	5.64%	6.57%	7.44%
A+	Wisconsin Energy Corp.	52.74	2.70	2.60	1.56	1.69	3.20%	9.50%	5.63%	5.12%	12.70%	8.84%
A	Allete, Inc.	55.14	3.20	2.85	1.96	2.04	3.70%	4.00%	6.00%	5.80%	7.70%	9.70%
A	Alliant Energy Corp.	66.42	3.60	3.45	2.04	2.20	3.31%	4.50%	5.27%	5.42%	7.81%	8.58%
A	American Electric Power Co., Inc.	60.72	3.50	3.45	2.03	2.15	3.54%	4.50%	4.87%	5.76%	8.04%	8.41%
A	Avista Corp.	35.35	2.00	1.95	1.27	1.32	3.73%	4.50%	5.50%	5.66%	8.23%	9.23%
A	Cleco Corp.	54.54	2.35	2.70	1.56	1.60	2.93%	7.50%	3.33%	4.31%	10.43%	6.27%
A	Duke Energy Corp.	83.54	4.65	4.20	3.15	3.21	3.84%	2.00%	4.87%	5.57%	5.84%	8.71%
A	Edison International	65.48	3.95	3.95	1.45	1.56	2.38%	7.50%	4.67%	6.03%	9.88%	7.05%
A	Hawaiian Electric Industries, Inc.	33.48	1.70	1.65	1.24	1.24	3.70%	1.00%	3.80%	5.08%	4.70%	7.50%
A	Integrus Energy Group, Inc.	77.85	3.15	3.35	2.72	2.72	3.49%	0.00%	3.50%	4.05%	3.49%	6.99%
A	MGE Energy Inc.	45.61	2.40	2.25	1.11	1.15	2.52%	4.00%	9.00%	5.26%	6.52%	11.52%
A	NextEra Energy, Inc.	106.29	5.50	4.60	2.90	3.08	2.90%	8.00%	6.43%	5.17%	10.90%	9.33%
A	Sempra Energy	111.36	4.75	4.50	2.64	2.80	2.51%	7.00%	7.53%	4.27%	9.51%	10.05%
A	Southern Co.	49.11	2.90	2.80	2.08	2.15	4.38%	3.50%	3.47%	5.91%	7.88%	7.84%
A	Vectren Corp.	46.23	2.40	2.05	1.45	1.54	3.33%	3.50%	6.17%	5.19%	6.83%	9.50%
	Mean						3.33%	4.75%	5.15%	5.34%	8.08%	8.48%
	Median						3.41%	4.25%	5.07%	5.49%	7.85%	8.64%
	Weighted Average										8.21%	8.44%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column j represents the average estimated earnings growth extracted from Value Line, Zacks.com and ThomsonReuters.com.

Column c was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Gas and Electric Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DvYld+ DvGrth (h+i)	DvYld+ ErngsGr (h+j)
B++	Ameren Corp.	46.13	2.55	2.35	1.61	1.65	3.58%	2.00%	7.23%	5.53%	5.58%	10.81%
B++	CenterPoint Energy, Inc.	23.43	1.30	1.30	0.95	1.03	4.40%	8.00%	4.57%	5.55%	12.40%	8.96%
B++	CMS Energy Corp.	34.75	1.85	1.75	1.08	1.14	3.28%	6.00%	6.40%	5.32%	9.28%	9.68%
B++	DTE Energy Co.	86.37	4.55	4.45	2.69	2.83	3.28%	5.00%	5.97%	5.27%	8.28%	9.24%
B++	El Paso Electric Co.	40.06	2.20	2.30	1.11	1.17	2.92%	7.00%	4.85%	5.49%	9.92%	7.77%
B++	Empire District Electric Co.	29.74	1.50	1.55	1.03	1.05	3.53%	4.50%	3.33%	5.04%	8.03%	6.86%
B++	Entergy Corp.	87.48	5.45	5.90	3.32	3.32	3.80%	2.50%	0.30%	6.23%	6.30%	4.10%
B++	Exelon Corp.	37.08	2.65	2.10	1.24	1.24	3.34%	-3.50%	3.73%	7.15%	-0.16%	7.08%
B++	Northeast Utilities	53.52	2.85	2.55	1.57	1.68	3.14%	7.50%	6.87%	5.33%	10.64%	10.01%
B++	Portland General Electric Co.	37.83	2.30	2.20	1.12	1.14	3.01%	4.50%	7.00%	6.08%	7.51%	10.01%
B++	SCANA Corp.	60.40	3.90	3.80	2.10	2.16	3.58%	3.00%	5.10%	6.46%	6.58%	8.68%
B++	UIL Holdings Corp.	43.54	2.50	2.20	1.73	1.73	3.97%	0.00%	5.23%	5.74%	3.97%	9.21%
B++	Westar Energy, Inc.	41.24	2.45	2.35	1.39	1.44	3.49%	3.00%	4.40%	5.94%	6.49%	7.89%
B++	Xcel Energy, Inc.	35.92	2.05	1.95	1.20	1.26	3.51%	5.00%	4.67%	5.71%	8.51%	8.17%
B+	Black Hills Corp.	53.04	2.85	2.80	1.56	1.64	3.09%	4.00%	9.50%	5.37%	7.09%	12.59%
B+	FirstEnergy Corp.	38.99	2.75	2.10	1.44	1.44	3.69%	-4.00%	-0.60%	7.05%	-0.31%	3.09%
B+	Great Plains Energy Inc.	28.41	1.60	1.55	0.94	1.00	3.52%	5.50%	5.33%	5.63%	9.02%	8.85%
B+	Otter Tail Corp.	30.96	1.85	1.75	1.21	1.23	3.97%	1.50%	15.50%	5.98%	5.47%	19.47%
B+	Pepco Holdings, Inc.	26.93	1.45	1.25	1.08	1.08	4.01%	0.00%	6.93%	5.38%	4.01%	10.94%
B+	PG&E Corp.	53.24	2.50	2.15	1.82	1.82	3.42%	2.50%	7.00%	4.70%	5.92%	10.42%
B	PNM Resources, Inc.	29.63	1.55	1.50	0.74	0.80	2.70%	12.00%	10.00%	5.23%	14.70%	12.70%
	Mean						3.49%	3.62%	5.87%	5.72%	7.11%	9.36%
	Median						3.51%	4.00%	5.33%	5.55%	7.09%	9.21%
	Weighted Average										5.85%	8.19%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column j represents the average estimated earnings growth extracted from Value Line, Zacks.com and ThomsonReuters.com.

Column c was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

**2015 Capitalization Rate Study
Gas and Electric Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
A+	Consolidated Edison, Inc.	2.00%	3.00%	2.40%	2.47%
A+	OGE Energy Corp.	5.50%	6.50%	7.10%	6.37%
A+	Pinnacle West Capital Corp.	4.00%	4.00%	3.60%	3.87%
A+	Wisconsin Energy Corp.	5.50%	6.00%	5.40%	5.63%
A	Allete, Inc.	6.00%	N/A	N/A	6.00%
A	Alliant Energy Corp.	6.00%	4.90%	4.90%	5.27%
A	American Electric Power Co., Inc.	4.50%	4.90%	5.20%	4.87%
A	Avista Corp.	5.50%	N/A	N/A	5.50%
A	Cleco Corp.	2.00%	4.00%	4.00%	3.33%
A	Duke Energy Corp.	5.00%	4.80%	4.80%	4.87%
A	Edison International	2.50%	8.10%	3.40%	4.67%
A	Hawaiian Electric Industries, Inc.	4.00%	4.00%	3.40%	3.80%
A	Integrus Energy Group, Inc.	0.50%	5.00%	5.00%	3.50%
A	MGE Energy Inc.	9.00%	N/A	N/A	9.00%
A	NextEra Energy, Inc.	6.00%	6.60%	6.70%	6.43%
A	Sempra Energy	7.00%	7.90%	7.70%	7.53%
A	Southern Co.	3.50%	3.60%	3.30%	3.47%
A	Vectren Corp.	9.00%	5.00%	4.50%	6.17%
B++	Ameren Corp.	4.50%	8.30%	8.90%	7.23%
B++	CenterPoint Energy, Inc.	5.00%	4.80%	3.90%	4.57%
B++	CMS Energy Corp.	6.50%	6.10%	6.60%	6.40%
B++	DTE Energy Co.	5.50%	6.20%	6.20%	5.97%
B++	El Paso Electric Co.	3.00%	6.70%	N/A	4.85%
B++	Empire District Electric Co.	4.00%	3.00%	3.00%	3.33%
B++	Entergy Corp.	1.50%	-1.00%	0.40%	0.30%
B++	Exelon Corp.	3.50%	4.40%	3.30%	3.73%
B++	Northeast Utilities	8.00%	6.70%	5.90%	6.87%
B++	Portland General Electric Co.	5.00%	8.00%	8.00%	7.00%
B++	SCANA Corp.	5.00%	4.90%	5.40%	5.10%
B++	UIL Holdings Corp.	4.50%	5.80%	5.40%	5.23%
B++	Westar Energy, Inc.	6.00%	3.80%	3.40%	4.40%
B++	Xcel Energy, Inc.	5.50%	4.20%	4.30%	4.67%

**2015 Capitalization Rate Study
Gas and Electric Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
B+	Black Hills Corp.	9.50%	N/A	N/A	9.50%
B+	FirstEnergy Corp.	4.50%	-3.50%	-2.80%	-0.60%
B+	Great Plains Energy Inc.	6.00%	5.00%	5.00%	5.33%
B+	Otter Tail Corp.	15.50%	N/A	N/A	15.50%
B+	Pepco Holdings, Inc.	7.00%	6.00%	7.80%	6.93%
B+	PG&E Corp.	5.00%	7.50%	8.50%	7.00%
B	PNM Resources, Inc.	11.00%	9.10%	9.90%	10.00%
	Mean	5.47%	5.13%	4.98%	5.54%
	Median	5.00%	5.00%	5.00%	5.27%
	Weighted Average				4.86%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Gas and Electric Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Mkt Value Equity (\$million)	L.T. Debt (\$million)	Pfd Stock (\$million)	Common Equity (\$million)	Total Capital (\$million)	L.T. Debt %	Pfd Stock %	Common Equity %
A+	Consolidated Edison, Inc.	292,885,004	66.01	19,333.34	11,084.00	0.00	19,333.34	30,417.34	36.44%	0.00%	63.56%
A+	OGE Energy Corp.	199,319,096	35.48	7,071.84	2,509.70	0.00	7,071.84	9,581.54	26.19%	0.00%	73.81%
A+	Pinnacle West Capital Corp.	110,408,854	68.31	7,542.03	2,999.50	0.00	7,542.03	10,541.53	28.45%	0.00%	71.55%
A+	Wisconsin Energy Corp.	225,517,341	52.74	11,893.78	4,569.60	30.40	11,893.78	16,493.78	27.70%	0.18%	72.11%
A	Allele, Inc.	44,499,229	55.14	2,453.69	1,289.20	0.00	2,453.69	3,742.89	34.44%	0.00%	65.56%
A	Alliant Energy Corp.	110,935,680	66.42	7,368.35	1,796.00	200.00	7,368.35	9,364.35	19.18%	2.14%	78.69%
A	American Electric Power Co., Inc.	489,240,481	60.72	29,706.68	15,677.00	0.00	29,706.68	45,383.68	34.54%	0.00%	65.46%
A	Avista Corp.	64,432,985	35.35	2,277.71	1,320.10	0.00	2,277.71	3,597.81	36.69%	0.00%	63.31%
A	Cleco Corp.	60,377,666	54.54	3,293.00	1,320.20	0.00	3,293.00	4,613.20	28.62%	0.00%	71.38%
A	Duke Energy Corp.	707,290,608	83.54	59,087.06	38,702.00	0.00	59,087.06	97,789.06	39.58%	0.00%	60.42%
A	Edison International	325,811,206	65.48	21,334.12	9,926.00	2,022.00	21,334.12	33,282.12	29.82%	6.08%	64.10%
A	Hawaiian Electric Industries, Inc.	102,560,176	33.48	3,433.71	1,506.50	34.30	3,433.71	4,974.51	30.28%	0.69%	69.03%
A	Integrus Energy Group, Inc.	79,963,091	77.85	6,225.13	2,956.30	51.10	6,225.13	9,232.53	32.02%	0.55%	67.43%
A	MGE Energy Inc.	34,668,370	45.61	1,581.22	396.30	0.00	1,581.22	1,977.52	20.04%	0.00%	79.96%
A	NextEra Energy, Inc.	436,482,306	106.29	46,393.70	24,853.00	0.00	46,393.70	71,246.70	34.88%	0.00%	65.12%
A	Sempra Energy	245,893,714	111.36	27,382.72	12,323.00	20.00	27,382.72	39,725.72	31.02%	0.05%	68.93%
A	Southern Co.	895,696,608	49.11	43,987.66	22,121.00	1,131.00	43,987.66	67,239.66	32.90%	1.68%	65.42%
A	Vectren Corp.	82,537,902	46.23	3,815.73	1,572.30	0.00	3,815.73	5,388.03	29.18%	0.00%	70.82%
Mean									30.67%	0.63%	68.70%
Median									30.65%	0.00%	68.18%
Weighted Average									33.78%	0.75%	65.47%

Sources: Columns a, c, f and g were extracted from Value Line.
Column d was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Gas and Electric Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Mkt Value Equity (\$million)	L.T. Debt (\$million)	Pfd Stock (\$million)	Common Equity (\$million)	Total Capital (\$million)	L.T. Debt %	Pfd Stock %	Common Equity %
B++	Ameren Corp.	242,634,798	46.13	11,192.74	5,825.00	142.00	11,192.74	17,159.74	33.95%	0.83%	65.23%
B++	CenterPoint Energy, Inc.	429,795,830	23.43	10,070.12	7,797.00	0.00	10,070.12	17,867.12	43.64%	0.00%	56.36%
B++	CMS Energy Corp.	275,100,000	34.75	9,559.73	8,171.00	37.00	9,559.73	17,767.73	45.99%	0.21%	53.80%
B++	DTE Energy Co.	176,991,277	86.37	15,286.74	7,909.00	0.00	15,286.74	23,195.74	34.10%	0.00%	65.90%
B++	El Paso Electric Co.	40,351,191	40.06	1,616.47	999.70	0.00	1,616.47	2,616.17	38.21%	0.00%	61.79%
B++	Empire District Electric Co.	43,439,071	29.74	1,291.88	743.30	0.00	1,291.88	2,035.18	36.52%	0.00%	63.48%
B++	Entergy Corp.	180,481,135	87.48	15,788.49	11,635.00	304.80	15,788.49	27,728.29	41.96%	1.10%	56.94%
B++	Exelon Corp.	859,197,443	37.08	31,859.04	18,781.00	193.00	31,859.04	50,833.04	36.95%	0.38%	62.67%
B++	Northeast Utilities	316,385,790	53.52	16,932.97	8,147.10	155.60	16,932.97	25,235.67	32.28%	0.62%	67.10%
B++	Portland General Electric Co.	78,203,099	37.83	2,958.42	2,071.00	0.00	2,958.42	5,029.42	41.18%	0.00%	58.82%
B++	SCANA Corp.	142,052,888	60.40	8,579.99	5,681.00	0.00	8,579.99	14,260.99	39.84%	0.00%	60.16%
B++	UIL Holdings Corp.	56,546,266	43.54	2,462.02	1,714.00	0.00	2,462.02	4,176.02	41.04%	0.00%	58.96%
B++	Westar Energy, Inc.	130,196,193	41.24	5,369.29	3,215.40	0.00	5,369.29	8,584.69	37.46%	0.00%	62.54%
B++	Xcel Energy, Inc.	505,370,152	35.92	18,152.90	11,753.00	0.00	18,152.90	29,905.90	39.30%	0.00%	60.70%
B+	Black Hills Corp.	44,641,421	53.04	2,367.78	1,122.00	0.00	2,367.78	3,489.78	32.15%	0.00%	67.85%
B+	FirstEnergy Corp.	420,344,546	38.99	16,389.23	18,415.00	0.00	16,389.23	34,804.23	52.91%	0.00%	47.09%
B+	Great Plains Energy Inc.	154,124,361	28.41	4,378.67	3,488.10	39.00	4,378.67	7,905.77	44.12%	0.49%	55.39%
B+	Otter Tail Corp.	36,806,160	30.96	1,139.52	498.50	0.00	1,139.52	1,638.02	30.43%	0.00%	69.57%
B+	Pepco Holdings, Inc.	251,907,108	26.93	6,783.86	4,691.00	0.00	6,783.86	11,474.86	40.88%	0.00%	59.12%
B+	PG&E Corp.	471,411,575	53.24	25,097.95	13,966.00	252.00	25,097.95	39,315.95	35.52%	0.64%	63.84%
B	PNM Resources, Inc.	79,653,624	29.63	2,360.14	1,717.20	11.50	2,360.14	4,088.84	42.00%	0.28%	57.72%
	Mean								39.07%	0.22%	60.72%
	Median								39.30%	0.00%	60.70%
	Weighted Average								39.63%	0.33%	60.05%

Sources: Columns a, c, f and g were extracted from Value Line.
Column d was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Gas and Electric Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Standard & Poor's Beta	Average Beta	Company's Tax Rate	Debt Equity Ratio ¹	Unlevered Beta ²
A+	Consolidated Edison, Inc.	0.60	0.15	0.20	0.32	0.34	0.63	0.42
A+	OGE Energy Corp.	0.90	0.68	0.67	0.75	0.33	0.44	0.69
A+	Pinnacle West Capital Corp.	0.70	0.42	0.41	0.51	0.34	0.57	0.51
A+	Wisconsin Energy Corp.	0.65	0.24	0.29	0.39	0.38	0.50	0.50
A	Allete, Inc.	0.80	0.71	0.75	0.75	0.22	0.56	0.56
A	Alliant Energy Corp.	0.80	0.49	0.49	0.59	0.15	0.56	0.54
A	American Electric Power Co., Inc.	0.70	0.35	0.41	0.49	0.36	0.73	0.48
A	Avista Corp.	0.80	0.60	0.64	0.68	0.36	0.78	0.53
A	Cleco Corp.	0.80	0.51	0.55	0.62	0.34	0.52	0.60
A	Duke Energy Corp.	0.60	0.18	0.23	0.34	0.33	0.61	0.42
A	Edison International	0.75	0.47	0.48	0.57	0.20	0.88	0.44
A	Hawaiian Electric Industries, Inc.	0.80	0.21	0.28	0.43	0.33	0.55	0.59
A	Integrus Energy Group, Inc.	0.80	0.62	0.68	0.70	0.37	0.50	0.61
A	MGE Energy Inc.	0.70	0.54	0.58	0.61	0.36	0.30	0.59
A	NextEra Energy, Inc.	0.70	0.40	0.44	0.51	0.32	0.69	0.48
A	Sempra Energy	0.75	0.46	0.46	0.56	0.28	0.59	0.53
A	Southern Co.	0.55	0.17	0.19	0.30	0.36	0.55	0.41
A	Vectren Corp.	0.80	0.51	0.56	0.62	0.35	0.61	0.57
	Mean	0.73	0.43	0.46	0.54		0.59	0.53
	Median	0.75	0.47	0.47	0.56		0.56	0.53
	Weighted Average				0.45		0.63	0.47
	Relevered Beta based on 45% Debt Capital Structure and Mean Unlevered Beta ³							0.78
	Relevered Beta based on 45% Debt Capital Structure and Weighted Average Unlevered Beta ³							0.70

Sources: Columns a, c and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = $\text{Beta} / [1 + (1 - \text{tc})(\text{D/E})]$; where D/E is the debt to equity ratio, tc is the company's most recent tax rate.

³ Relevered Beta = $[\text{Unlevered Beta}] [1 + (1 - \text{tp})(\text{D/E})]$; where D/E is the debt to equity ratio, tp is a prospective purchaser's tax rate (assumed to be 40%).

2015 Capitalization Rate Study
Gas and Electric Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Standard & Poor's Beta	Average Beta	Company's Tax Rate	Debt Equity Ratio ¹	Unlevered Beta ²
B++	Ameren Corp.	0.75	0.36	0.38	0.50	0.40	0.81	0.50
B++	CenterPoint Energy, Inc.	0.75	0.44	0.48	0.56	0.37	0.96	0.47
B++	CMS Energy Corp.	0.70	0.29	0.34	0.44	0.40	1.09	0.42
B++	DTE Energy Co.	0.75	0.34	0.35	0.48	0.29	0.86	0.47
B++	El Paso Electric Co.	0.70	0.44	N/A	0.57	0.32	0.59	0.50
B++	Empire District Electric Co.	0.70	0.42	0.47	0.53	0.37	0.72	0.48
B++	Entergy Corp.	0.70	0.37	0.41	0.49	0.37	0.94	0.44
B++	Exelon Corp.	0.70	0.45	0.50	0.55	0.25	0.60	0.48
B++	Northeast Utilities	0.75	0.47	0.52	0.58	0.36	0.66	0.53
B++	Portland General Electric Co.	0.80	0.52	0.52	0.61	0.25	0.85	0.49
B++	SCANA Corp.	0.75	0.42	0.44	0.54	0.32	0.76	0.50
B++	UIL Holdings Corp.	0.80	0.58	0.59	0.66	0.38	0.73	0.55
B++	Westar Energy, Inc.	0.75	0.45	0.46	0.55	0.30	0.81	0.48
B++	Xcel Energy, Inc.	0.70	0.29	0.31	0.43	0.35	0.73	0.48
B+	Black Hills Corp.	0.90	0.80	0.84	0.85	0.35	0.70	0.62
B+	FirstEnergy Corp.	0.70	0.27	0.34	0.44	0.31	1.11	0.40
B+	Great Plains Energy Inc.	0.85	0.60	0.66	0.70	0.33	0.96	0.52
B+	Otter Tail Corp.	0.90	1.04	1.10	1.01	0.25	0.49	0.66
B+	Pepco Holdings, Inc.	0.70	0.29	0.28	0.42	0.35	0.78	0.47
B+	PG&E Corp.	0.65	0.35	0.36	0.45	0.25	0.66	0.44
B	PNM Resources, Inc.	0.85	0.63	0.62	0.70	0.33	1.05	0.50
	Mean	0.75	0.47	0.50	0.57		0.80	0.49
	Median	0.75	0.44	0.47	0.55		0.78	0.48
	Weighted Average				0.51		0.81	0.47
	Relevered Beta based on 47% Debt Capital Structure and Mean Unlevered Beta ³							0.76
	Relevered Beta based on 47% Debt Capital Structure and Weighted Average Unlevered Beta ³							0.72

Sources: Columns a, c and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = $\text{Beta} / [1 + (1 - \text{tc})(\text{D/E})]$; where D/E is the debt to equity ratio, tc is the company's most recent tax rate.

³ Relevered Beta = $[\text{Unlevered Beta}] [1 + (1 - \text{tp})(\text{D/E})]$; where D/E is the debt to equity ratio, tp is the prospective purchaser's tax rate (assumed to be 40%).

**2015 Capitalization Rate Study
Natural Gas Distribution Companies
Flotation Cost Adjustment**

Equity				Preferred Stock				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A, B++	10.10%	4.50%	10.58%	A3	6.00%	1.70%	6.10%	Aa2	4.01%	1.70%	4.08%
								Aa3	4.03%	1.70%	4.10%
Not Rated	11.75%	4.50%	12.30%					A1	4.06%	1.70%	4.13%
	13.50%	4.50%	14.14%					A2	4.08%	1.70%	4.15%
								A3	4.34%	1.70%	4.42%
								Baa1	4.60%	1.70%	4.68%
								Baa2	4.86%	1.70%	4.94%
								Baa3	5.00%	1.70%	5.09%
								Ba1	5.14%	1.70%	5.23%
								Ba2	5.28%	1.70%	5.37%
								Ba3	5.42%	1.70%	5.51%
								Not Rated	5.98%	1.70%	6.08%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

**2015 Capitalization Rate Study
Natural Gas Distribution Companies
Summary of Rates of Return**

Common Equity		Preferred Stock		Bonds		
Value Line Rating	Rate of Return ¹	Moody's Bond Rating	Rate of Return ²	Moody's Bond Yields	Moody's Rating	Rate of Return ³
A, B++	10.10%	A3	6.00%	Aaa=N/A	Aaa2	3.39%
					Aaa3	3.53%
Not Rated	11.75%				Aa1	3.67%
	13.50%			Aa=3.81	Aa2	3.81%
					Aa3	3.83%
					A1	3.86%
				A=3.88	A2	3.88%
					A3	4.14%
					Baa1	4.40%
				Baa=4.66	Baa2	4.66%
					Baa3	4.80%
					Ba1	4.94%
					Ba2	5.08%
					Ba3	5.22%
					B1	5.36%
					B2	5.50%
					B3	5.64%
					Not Rated	5.78%

¹ The Rate of Return on Common Equity was developed by staff based on the relative risks of the utilities in conjunction with the results of various financial models and pertinent information from different sources. Consideration was also given to the latest decisions of the California Public Utilities Commission. For 2015, the return on equity (ROE) and return on rate base (ROR) for Southern California Gas Company are 10.10% and 8.02%, respectively (D 12-12-034); for Southwest Gas Corporation, the ROE and ROR are 10.10% and 8.18%, respectively.

² The Rate of Return on Preferred Stocks was developed by staff based on the relative risks of the utilities. Consideration was given to the latest decisions of the California Public Utilities Commission.

³ The Rates of Return on Bonds were based on the 2014 Moody's "Utility Bond Yields" reports. Because Moody's assigns yields only to groups Aaa, Aa, A and Baa, staff interpolated the difference between these groups to further refine the ratings.

2015 Capitalization Rate Study
Natural Gas Distribution Companies
Capital Asset Pricing Model - Ex Ante

Component	Value Line Ratings
	A+, A, B++, B+
Expected Future Return, S&P 500	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Risk Premium	8.40%
Beta ²	0.79
Adjusted Risk Premium	6.64%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Projected Return on Common Equity	9.39%

¹ WSJ.com, December 31, 2014

² The estimated betas were derived from a sample of natural gas distribution companies with similar ratings.

2015 Capitalization Rate Study
Natural Gas Distribution Companies
Capital Asset Pricing Model - Ex Post

Component	Value Line Ratings
	A+, A, B++, B+
Common Stock Returns, S&P 500 (1928 - 2014) ¹	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	5.28%
Risk Premium	6.25%
Beta ²	0.79
Adjusted Risk Premium	4.94%
Risk Free Return 30 Year Treasury Bonds ³	2.75%
Projected Return on Common Equity	7.69%

¹ Damodaran Online, January 5, 2015

² The estimated betas were derived from a sample of natural gas distribution companies with similar ratings.

³ WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Natural Gas Distribution Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DvYld+ DvGrth (h+i)	DvYld+ ErngsGr (h+j)
A+	New Jersey Resources Corp.	61.20	3.10	4.20	1.71	1.80	2.94%	4.00%	5.00%	5.07%	6.94%	7.94%
A	AGL Resources, Inc.	54.51	3.75	4.25	1.96	2.04	3.74%	4.50%	5.33%	6.88%	8.24%	9.08%
A	Atmos Energy Corp.	55.74	3.05	2.96	1.48	1.56	2.80%	3.50%	7.17%	5.47%	6.30%	9.97%
A	Northwest Natural Gas Co.	49.90	2.40	2.25	1.85	1.87	3.75%	2.50%	4.83%	4.81%	6.25%	8.58%
A	South Jersey Industries, Inc.	58.93	3.50	3.30	1.95	2.10	3.56%	8.00%	7.00%	5.94%	11.56%	10.56%
A	WGL Holdings, Inc.	54.62	2.80	2.68	1.74	1.78	3.26%	2.50%	5.15%	5.13%	5.76%	8.41%
B++	Laclede Group, Inc.	53.20	3.00	2.35	1.76	1.84	3.46%	5.00%	6.20%	5.64%	8.46%	9.66%
B++	Piedmont Natural Gas Co., Inc.	39.41	2.00	1.90	1.27	1.31	3.32%	3.00%	5.00%	5.07%	6.32%	8.32%
B++	Southwest Gas Corp.	61.81	3.25	3.05	1.46	1.56	2.52%	7.00%	5.17%	5.26%	9.52%	7.69%
B++	UGI Corp.	37.98	2.00	1.92	0.80	0.88	2.32%	4.00%	9.60%	5.27%	6.32%	11.92%
B+	NiSource, Inc.	42.42	1.85	1.70	1.02	1.06	2.50%	4.00%	8.40%	4.36%	6.50%	10.90%
	Mean						3.11%	4.36%	6.26%	5.35%	7.47%	9.37%
	Median						3.26%	4.00%	5.33%	5.26%	6.50%	9.08%
	Weighted Average										7.15%	9.97%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column j represents the average estimated earnings growth extracted from Value Line, Zacks.com and ThomsonReuters.com.

Column c was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

**2015 Capitalization Rate Study
Natural Gas Distribution Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
A+	New Jersey Resources Corp.	6.00%	4.00%	N/A	5.00%
A	AGL Resources, Inc.	10.50%	4.00%	1.50%	5.33%
A	Atmos Energy Corp.	7.50%	7.00%	7.00%	7.17%
A	Northwest Natural Gas Co.	6.50%	4.00%	4.00%	4.83%
A	South Jersey Industries, Inc.	8.00%	6.00%	N/A	7.00%
A	WGL Holdings, Inc.	5.00%	5.30%	N/A	5.15%
B++	Laclede Group, Inc.	8.00%	5.20%	5.40%	6.20%
B++	Piedmont Natural Gas Co., Inc.	5.00%	5.00%	5.00%	5.00%
B++	Southwest Gas Corp.	6.00%	5.50%	4.00%	5.17%
B++	UGI Corp.	10.50%	8.80%	9.50%	9.60%
B+	NiSource, Inc.	10.50%	6.30%	N/A	8.40%
	Mean	7.59%	5.55%	5.20%	6.26%
	Median	7.50%	5.30%	5.00%	5.33%
	Weighted Average				7.06%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Natural Gas Distribution Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Mkt Value Equity (\$million)	L.T. Debt (\$million)	Pfd Stock (\$million)	Common Equity (\$million)	Total Capital (\$million)	L.T. Debt %	Pfd Stock %	Common Equity %
A+	New Jersey Resources Corp.	42,249,211	61.20	2,585.65	598.20	0.00	2,585.65	3,183.85	18.79%	0.00%	81.21%
A	AGL Resources, Inc.	119,572,999	54.51	6,517.92	3,605.00	0.00	6,517.92	10,122.92	35.61%	0.00%	64.39%
A	Atmos Energy Corp.	100,351,676	55.74	5,593.60	1,955.90	0.00	5,593.60	7,549.50	25.91%	0.00%	74.09%
A	Northwest Natural Gas Co.	27,206,484	49.90	1,357.60	621.70	0.00	1,357.60	1,979.30	31.41%	0.00%	68.59%
A	South Jersey Industries, Inc.	33,646,410	58.93	1,982.78	935.40	0.00	1,982.78	2,918.18	32.05%	0.00%	67.95%
A	WGL Holdings, Inc.	49,708,750	54.62	2,715.09	679.20	28.20	2,715.09	3,422.49	19.85%	0.82%	79.33%
B++	Laclede Group, Inc.	43,167,152	53.20	2,296.49	1,851.00	0.00	2,296.49	4,147.49	44.63%	0.00%	55.37%
B++	Piedmont Natural Gas Co., Inc.	78,339,849	39.41	3,087.37	1,174.90	0.00	3,087.37	4,262.27	27.57%	0.00%	72.43%
B++	Southwest Gas Corp.	46,518,555	61.81	2,875.31	1,437.70	0.00	2,875.31	4,313.01	33.33%	0.00%	66.67%
B++	UGI Corp.	172,383,993	37.98	6,547.14	3,477.80	0.00	6,547.14	10,024.94	34.69%	0.00%	65.31%
B+	NiSource, Inc.	315,699,826	42.42	13,391.99	8,397.40	0.00	13,391.99	21,789.39	38.54%	0.00%	61.46%
	Mean								31.13%	0.07%	68.80%
	Median								32.05%	0.00%	67.95%
	Weighted Average								33.55%	0.04%	66.41%

Sources: Columns a, c, f and g were extracted from Value Line.
Column d was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Natural Gas Distribution Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Standard & Poor's Beta	Average Beta	Company's Tax Rate	Debt Equity Ratio ¹	Unlevered Beta ²
A+	New Jersey Resources Corp.	0.80	0.60	0.61	0.67	0.35	0.25	0.69
A	AGL Resources, Inc.	0.80	0.46	0.51	0.59	0.38	0.66	0.57
A	Atmos Energy Corp.	0.80	0.56	0.60	0.65	0.39	0.59	0.59
A	Northwest Natural Gas Co.	0.70	0.55	0.55	0.60	0.39	0.51	0.53
A	South Jersey Industries, Inc.	0.80	0.72	0.73	0.75	0.20	0.32	0.64
A	WGL Holdings, Inc.	0.75	0.68	0.69	0.71	0.39	0.29	0.64
B++	Laclede Group, Inc.	0.70	0.44	0.44	0.53	0.28	0.53	0.51
B++	Piedmont Natural Gas Co., Inc.	0.80	0.61	0.62	0.68	0.25	0.36	0.63
B++	Southwest Gas Corp.	0.85	0.72	0.75	0.77	0.35	0.55	0.63
B++	UGI Corp.	0.85	0.67	0.67	0.73	0.30	0.63	0.59
B+	NiSource, Inc.	0.85	0.45	0.43	0.58	0.36	0.87	0.55
	Mean	0.79	0.59	0.60	0.66		0.51	0.60
	Median	0.80	0.60	0.61	0.67		0.53	0.59
	Weighted Average				0.64		0.63	0.58
	Relevered Beta based on 46% Debt Capital Structure and Mean Unlevered Beta ³							0.90
	Relevered Beta based on 46% Debt Capital Structure and Weighted Average Unlevered Beta ³							0.88

Sources: Columns a, c and g were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = $\text{Beta} / [1 + (1 - t_c)(D/E)]$; where D/E is the debt to equity ratio, t_c is the company's most recent tax rate.

³ Relevered Beta = $[\text{Unlevered Beta}] [1 + (1 - t_p)(D/E)]$; where D/E is the debt to equity ratio, t_p is a prospective purchaser's tax rate (assumed to be 40%).

**2015 Capitalization Rate Study
Water Utility Companies
Flotation Cost Adjustment**

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A	9.43%	4.50%	9.87%	Not Rated	4.08%	1.70%	4.15%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

**2015 Capitalization Rate Study
Water Utility Companies
Summary of Rates of Return**

Common Equity		Bonds	
Value Line Rating	Rate of Return ¹	Moody's Rating	Rate of Return
A	9.43%	Not Rated	4.08%

¹ In developing the Rate of Return on Common Equity, staff considered the latest decision of the California Public Utilities Commission and other pertinent information. For 2015, the return on equity and return on rate base for Golden State Water Company are 9.43% and 8.34%, respectively (D.12-07-009).

2015 Capitalization Rate Study
Water Utility Companies
Capital Asset Pricing Model - Ex Ante

Component	Value Line Ratings
	A, B++, B+
Expected Future Return, S&P 500	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Risk Premium	8.40%
Beta ²	0.64
Adjusted Risk Premium	5.41%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Projected Return on Common Equity	8.16%

¹ WSJ.com, December 31, 2014

² The estimated betas were derived from a sample of water companies with similar ratings.

2015 Capitalization Rate Study
Water Utility Companies
Capital Asset Pricing Model - Ex Post

Component	Value Line Ratings
	A, B++, B+
Common Stock Returns, S&P 500 (1928 - 2014) ¹	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	<u>5.28%</u>
Risk Premium	6.25%
Beta ²	<u>0.71</u>
Adjusted Risk Premium	4.45%
Risk Free Return 30 Year Treasury Bonds ³	<u>2.75%</u>
Projected Return on Common Equity	<u><u>7.20%</u></u>

¹ Damodaran Online, January 5, 2015

² The estimated betas were derived from a sample of water companies with similar ratings.

³ WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Water Utility Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DvYld+ DvGrth (h+i)	DvYld+ ErngsGr (h+j)
A	American States Water Co.	37.66	1.60	1.45	0.83	0.87	2.31%	9.00%	3.17%	4.25%	11.31%	5.48%
B++	Aqua America, Inc.	26.70	1.30	1.20	0.63	0.69	2.58%	9.00%	5.83%	4.87%	11.58%	8.42%
B++	California Water Service Group	24.61	1.20	1.05	0.65	0.68	2.76%	7.00%	6.50%	4.88%	9.76%	9.26%
B++	Middlesex Water Company	23.06	1.15	1.10	0.76	0.77	3.34%	2.00%	5.00%	4.99%	5.34%	8.34%
B+	American Water Works Co., Inc.	53.30	2.60	2.35	1.18	1.30	2.44%	7.50%	7.87%	4.88%	9.94%	10.31%
B+	York Water Co.	23.21	0.95	0.85	0.57	0.59	2.54%	5.50%	7.00%	4.09%	8.04%	9.54%
	Mean						2.66%	6.67%	5.89%	4.66%	9.33%	8.56%
	Median						2.56%	7.25%	6.17%	4.87%	9.85%	8.84%
	Weighted Average										10.31%	9.39%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column j represents the average estimated earnings growth extracted from Value Line, Zacks.com and ThomsonReuters.com.

Column c was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Water Utility Companies
Long Term Earnings Growth

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
A	American States Water Co.	5.50%	2.00%	2.00%	3.17%
B++	Aqua America, Inc.	8.50%	5.00%	4.00%	5.83%
B++	California Water Service Group	7.50%	6.00%	6.00%	6.50%
B++	Middlesex Water Company	5.00%	N/A	N/A	5.00%
B+	American Water Works Co., Inc.	7.50%	7.90%	8.20%	7.87%
B+	York Water Co.	7.00%	N/A	N/A	7.00%
	Mean	6.83%	5.23%	5.05%	5.89%
	Median	7.25%	5.50%	5.00%	6.17%
	Weighted Average				6.88%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Water Utility Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Mkt Value Equity (\$million)	L.T. Debt (\$million)	Pfd Stock (\$million)	Common Equity (\$million)	Total Capital (\$million)	L.T. Debt %	Pfd Stock %	Common Equity %
A	American States Water Co.	38,709,657	37.66	1,457.81	310.90	0.00	1,457.81	1,768.71	17.58%	0.00%	82.42%
B++	Aqua America, Inc.	177,180,169	26.70	4,730.71	1,481.40	0.00	4,730.71	6,212.11	23.85%	0.00%	76.15%
B++	California Water Service Group	47,803,849	24.61	1,176.45	423.30	0.00	1,176.45	1,599.75	26.46%	0.00%	73.54%
B++	Middlesex Water Company	16,056,825	23.06	370.27	132.20	2.40	370.27	504.87	26.18%	0.48%	73.34%
B+	American Water Works Co., Inc.	179,148,915	53.30	9,548.64	5,217.50	16.00	9,548.64	14,782.14	35.30%	0.11%	64.60%
B+	York Water Co.	12,831,171	23.21	297.81	84.90	0.00	297.81	382.71	22.18%	0.00%	77.82%
	Mean								25.26%	0.10%	74.64%
	Median								25.02%	0.00%	74.85%
	Weighted Average								30.30%	0.07%	69.63%

Sources: Columns a, c, f and g were extracted from Value Line.

Column d was acquired from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

**2015 Capitalization Rate Study
Water Utility Companies
Beta Analysis**

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Standard & Poor's Beta	Average Beta	Company's Tax Rate	Debt Equity Ratio ¹	Unlevered Beta ²
A	American States Water Co.	0.70	0.74	0.77	0.74	0.37	0.37	0.60
B++	Aqua America, Inc.	0.70	0.50	0.51	0.57	0.30	0.40	0.44
B++	California Water Service Group	0.70	0.60	0.62	0.64	0.35	0.50	0.48
B++	Middlesex Water Company	0.70	0.64	0.68	0.67	0.36	0.42	0.53
B+	American Water Works Co., Inc.	0.70	0.27	N/A	0.49	0.39	0.85	0.32
B+	York Water Co.	0.70	0.52	0.53	0.58	0.38	0.30	0.49
	Mean	0.70	0.55	0.62	0.61		0.47	0.48
	Median	0.70	0.56	0.62	0.61		0.41	0.49
	Weighted Average				0.54		0.67	0.39
	Relevered Beta based on 45% Debt Capital Structure and Mean Unlevered Beta ³							0.71
	Relevered Beta based on 45% Debt Capital Structure and Weighted Average Unlevered Beta ³							0.58

Sources: Columns a, c and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = $\text{Beta} / [1 + (1 - \text{tc})(\text{D/E})]$; where D/E is the debt to equity ratio, tc is the company's most recent tax rate.

³ Relevered Beta = $[\text{Unlevered Beta}] [1 + (1 - \text{tp})(\text{D/E})]$; where D/E is the debt to equity ratio, tp is a prospective purchaser's tax rate (assumed to be 40%).

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Natural Gas Transmission Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
153	Transwestern Pipeline Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
180	North Baja Pipeline, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
187	Mojave Pipeline Company, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
188	Kern River Gas Transmission Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
189	Standard Pacific Gas Line, Incorporated	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
190	Tuscarora Gas Transmission Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
196	Questar Southern Trails Pipeline Company	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%
197	El Paso Natural Gas Company, LLC	Not Rated	Not Rated	75%	25%	12.04%	4.74%	10.22%

**2015 Capitalization Rate Study
Natural Gas Transmission Companies
Industry Notes**

- Interstate gas transmission companies are regulated by the Federal Energy Regulatory Commission (FERC).
- Due to lack of reliable information, El Paso Natural Gas Company, LLC was removed from the 2015 Capitalization Rate Study sample.
- Staff relied upon the results of the following models in the development of equity rates:
 1. Discounted Cash Flow
 2. Capital Asset Pricing Model – (Ex Post and Ex Ante)

**2015 Capitalization Rate Study
Natural Gas Transmission Companies
Flotation Cost Adjustment**

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
Not Rated	11.50%	4.50%	12.04%	Not Rated	4.66%	1.70%	4.74%

Cost of Capital Adjusted for Flotation Costs = $\frac{k_u}{1 - f}$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

Staff applied a bond rating of Baa for the Natural Gas Transmission Companies, which represents the estimated cost of debt for the companies in the study.

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Comparison of Return on Common Equity

Description	2015	2014	Change
E/P Ratio - Mean	6.63%	6.22%	0.41%
E/P Ratio - Median	5.34%	5.70%	-0.36%
Dividends Yield + Dividends Growth - Mean	8.00%	10.02%	-2.02%
Dividends Yield + Dividends Growth - Median	7.80%	8.09%	-0.29%
Dividends Yield + Earnings Growth - Mean	10.29%	9.52%	0.77%
Dividends Yield + Earnings Growth - Median	9.60%	8.27%	1.33%
Capital Asset Pricing Model (CAPM) - Ex Ante	13.36%	11.27%	2.08%
Capital Asset Pricing Model (CAPM) - Ex Post	10.64%	10.60%	0.04%
State-Assessed Properties Division Recommendation:	11.50%	12.00%	-0.50%

The Discounted Cash Flow (DCF) model is computed using data from a sample of gas transmission companies with similar risk and operations.

The information considered by staff includes the results of DCF analysis (Dividends Yield + Dividends Growth and Dividends Yield + Earnings Growth) and the results of the Capital Asset Pricing Model (CAPM) analysis.

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	2015 Est. Earnings	2014 Earnings	2014 Dividends	2015 Est. Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	Div Yld+ Div Grwh (h+i)	Div Yld+ Engs Grwh (h+j)
A	Questar Corp.	25.28	1.35	1.30	0.75	0.79	3.13%	6.00%	5.23%	5.34%	9.13%	8.36%
B++	Devon Energy Corp.	61.21	5.70	5.40	0.94	0.96	1.57%	5.50%	11.33%	9.31%	7.07%	12.90%
B++	National Fuel Gas Co.	69.53	3.65	3.52	1.52	1.60	2.30%	5.50%	7.30%	5.25%	7.80%	9.60%
	Mean						2.33%	5.67%	7.96%	6.63%	8.00%	10.29%
	Median						2.30%	5.50%	7.30%	5.34%	7.80%	9.60%
	Weighted Average										8.79%	14.03%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column c was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

Column j is an average of Value Line, Zacks.com and ThomsonReuters.com.

**2015 Capitalization Rate Study
Natural Gas Transmission Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
A	Questar Corp.	6.50%	4.80%	4.40%	5.23%
B++	Devon Energy Corp.	7.50%	11.70%	14.80%	11.33%
B++	National Fuel Gas Co.	10.00%	6.30%	5.60%	7.30%
	Mean	8.00%	7.60%	8.27%	7.96%
	Median	7.50%	6.30%	5.60%	7.30%
	Weighted Average				9.99%

Sources: Columns a, b and c were extracted from the Value Line Investment Survey Reports.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Natural Gas Transmission Company
Capital Asset Pricing Model - Ex Ante

Component	Industry Computation
Expected Future Return, S&P 500	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Risk Premium	8.40%
Relevered Beta	1.26
Adjusted Risk Premium	10.61%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Projected Return on Common Equity	<u>13.36%</u>

¹ WSJ.com, on December 31, 2014

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Capital Asset Pricing Model - Ex Post

Component	Industry Computation
Common Stock Returns, S&P 500 (1928-2014) ¹	11.53%
Less: 10 Year Treasury Bonds (1928-2014) ¹	5.28%
Risk Premium	6.25%
Relevered Beta	1.26
Adjusted Risk Premium	7.89%
Risk Free Return 30 Year Treasury Bonds ²	2.75%
Projected Return on Common Equity	<u>10.64%</u>

¹ Damodaran Online, January 5, 2015

² WSJ.com, on December 31, 2014

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line		Value		Standard		Company's	Debt	
Rating	Company Name	Line's	Zacks	& Poor's	Average	Tax	Equity	Unlevered
		Beta	Beta	Beta	Beta	Rate	Ratio ¹	Beta ²
A	Questar Corp.	0.80	0.56	0.11	0.49	0.35	0.26	0.42
B++	Devon Energy Corp.	1.20	1.30	1.30	1.27	0.48	0.25	1.12
B++	National Fuel Gas Co.	1.15	1.48	1.47	1.37	0.39	0.23	1.20
	Mean	1.05	1.11	0.96	1.04		0.24	0.91
	Median	1.15	1.30	1.30	1.27		0.25	1.12
	Weighted				1.19		2.40	1.05
	Relevered Beta based on 25% Debt Capital Structure						1.10 ³	
	Relevered Beta based on 25% Debt Capital Structure and a weighted average Beta						1.26 ³	

Sources: Column a, b, c and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = Corrected Beta/[1+(1-tc)(D/E)]; where D/E is the debt to equity ratio, tc is the company's 2014 tax rate.

³ Relevered Beta = [Unlevered Beta][1+(1-tp)(D/E)]; where D/E is the debt to equity ratio, tp is a prospective purchaser's tax rate (assumed to be 40%).

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
	Moody's			Common	Common	Market Value	L.T.	Common	Total	L.T.	Common
Value Line	Bond	P/S		Stock	Stock Price	Equity	Debt	Equity	Capital	Debt	Equity
Rating	Rating	Rating	Company Name	Outstanding	12/31/14	(\$million)	(\$million)	(\$million)	(\$million)	%	%
A	NR	NR	Questar Corp.	175,256,549	25.28	4,430.49	1,283.30	4,430.49	5,713.79	22.50%	77.50%
B++	NR	NR	Devon Energy Corp.	409,100,000	61.21	25,041.01	10,160.00	25,041.01	35,201.01	28.90%	71.10%
B++	NR	NR	National Fuel Gas Co.	84,190,266	69.53	5,853.75	1,649.00	5,853.75	7,502.75	22.00%	78.00%
			Mean							24.47%	75.53%
			Median							22.50%	77.50%
			Weighted Average							27.08%	72.92%

Recommended Capital Structure for Natural Gas Transmission Companies for lien date January 1, 2015:

Debt - 25%
Equity - 75%

Sources: Columns a, e and h were extracted from Value Line.

Column f was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

NR - Not Rated

2015 Capitalization Rate Study
Natural Gas Transmission Companies
Bonds - Rate of Return

Utility Bond Yield	Bond Rating				
	Aaa	Aa	A	Baa	Avg Utility
As of December 30, 2014	N/A	3.81%	3.88%	4.66%	4.12%

Source: Moody's Daily Long-Term Corporate Bond Yield Averages as of December 31, 2014.

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Electric Generation Facilities**

Facility Type	Ratings		Capital Structure		Rates of Return		Basic Cap Rate ³
	Financial	Bond	Common Equity	Debt	Common Equity	Debt	
Modern Electric Generation Technology ¹	B	B2	60%	40%	13.09%	6.36%	10.40%
Older Electric Generation Technology ²	B	B2	60%	40%	15.18%	7.38%	12.06%

¹ Modern Electric Generation Technology - Generally high efficiency combined-cycle or simple cycle gas turbine electric generation facilities incorporating contemporary generation technologies.

² Older Electric Generation Technology - Generally older steam turbine electric generation facilities that were sold off by vertically integrated electric utilities and for which no replacements, other than for routine maintenance have been made.

³ Staff may adjust the rates stated above if the specific situation of a facility warrants an adjustment to its basic capitalization rate.

**2015 Capitalization Rate Study
Electric Generation Facilities
Industry Notes**

- Staff relied primarily on the Capital Asset Pricing Model (CAPM) and Risk Premium Analysis in the development of equity rates. Consideration was given to both the ex post and ex ante risk premiums.
- The Discounted Cash Flow Model was not relied upon because not all of the merchant generators in the sample are currently paying dividends.
- Staff's recommended capital structure of 60% equity and 40% debt provides sufficient coverage of interest and principal payments on debt.
- Staff added a risk premium of 100 basis points to the debt rate for older technology to recognize the market's perception of additional risk present in operating these types of facilities.
- Staff considers the risk associated with older facilities to be greater than that of newer facilities, and has adjusted the beta used in the CAPM calculation upward to reflect this additional risk.

2015 Capitalization Rate Study
Electric Generation Facilities
Flotation Cost Adjustment

Facility Type	Equity			Debt		
	Recommended Rate	Flotation Cost in %	Adjusted Rate	Recommended Rate	Flotation Cost in %	Adjusted Rate
Modern Electric Generation Technology ¹	12.50%	4.50%	13.09%	6.25%	1.70%	6.36%
Older Electric Generation Technology ²	14.50%	4.50%	15.18%	7.25%	1.70%	7.38%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

¹ The Modern Electric Generation Technology Recommended Debt Rate was developed by staff based on the relative rates of the utilities and other pertinent information from various sources.

² The Older Electric Generation Technology Recommended Debt Rate is equal to the Modern Electric Generation Technology Recommended Debt Rate with an additional risk premium of 100 basis points.

**2015 Capitalization Rate Study
Electric Generation Facilities
Summary of Rates of Return**

Common Equity		Bonds		
Facility Type	Rate of Return ¹	Moody's Bond Yields	Moody's Rating	Rate of Return ²
Modern Electric Generation Technology	12.50%	Aaa=NA	Aaa2	3.39%
			Aaa3	3.53%
			Aa1	3.67%
Older Electric Generation Technology	14.50%	Aa=3.81%	Aa2	3.81%
			Aa3	3.83%
			A1	3.86%
		A=3.88%	A2	3.88%
			A3	4.14%
			Baa1	4.40%
		Baa=4.66%	Baa2	4.66%
			Baa3	4.80%
			Ba1	4.94%
			Ba2	5.08%
			Ba3	5.22%
			B1	5.36%
			B2	5.50%
			B3	5.64%
			Caa1	5.78%

¹ The Rate of Return on Common Equity was developed by staff based on the relative risk of the utilities in conjunction with the results of the various financial models and pertinent information from various sources.

² Rates of Return on Bonds are based on Moody's "Utility Bond Yields" as of December 30, 2014. However, because Moody's assigns a yield to the groups Aa, A and Baa for bonds, the staff interpolates the difference between these groups in order to achieve a further refinement of the ratings.

2015 Capitalization Rate Study
Electric Generation Facilities
Comparison of Rates of Return on Common Equity

	All Facilities in Study		
	2015	2014	Change
E/P Ratio-Mean	2.26%	3.17%	-0.91%
E/P Ratio-Median	5.57%	6.13%	-0.56%
Div Yld + Div Growth-Mean	8.07%	9.12%	-1.05%
Div Yld + Div Growth-Median	8.51%	6.56%	1.95%
Div Yld + Div Growth-Weighted Avg.	9.66%	10.56%	-0.90%
Div Yld + Earn.Growth-Mean	14.26%	7.28%	6.98%
Div Yld + Earn.Growth-Median	8.71%	8.23%	0.48%
Div Yld + Earn.Growth-Weighted Avg.	11.32%	8.12%	3.20%
Merrill Lynch Industry Factor - Required Return IPPs	9.60%	11.50%	-1.90%
ROE% - Yahoo Finance - Utilities	7.93%	8.52%	-0.59%
ROE% - Yahoo Finance - Electric Utilities	5.30%	2.70%	2.60%
ROE% - Yahoo Finance - Diversified Utilities	8.20%	9.90%	-1.70%

	Modern Technology	Older Technology
2014 Recommended Rate	13.00%	15.00%
CAPM - Ex Ante	10.31%	12.41%
CAPM - Ex Post	8.38%	9.94%
Risk Premium Analysis ¹	12.61%	13.63%
2015 Recommended Rate	12.50%	14.50%

¹ Risk Premium Analysis estimates the market indicated cost of equity by adding the appropriate "risk premium" to the corresponding cost of debt. "Risk Premium" of 6.25% is determined by comparing the Damodaran Online total return on large company stocks to the total return on long-term treasury bonds.

2015 Capitalization Rate Study
Electric Generation Facilities
Capital Asset Pricing Model - Ex Ante

Component	Types of Facilities	
	Modern Technology	Older Technology
Expected Future Return, S&P 500	11.15%	11.15%
Less: Risk Free Return - 30 Year Treasury Bonds ¹	2.75%	2.75%
Risk Premium	8.40%	8.40%
Beta ²	0.90	1.15
Adjusted Risk Premium	7.56%	9.66%
Risk Free Return - 30 Year Treasury Bonds ¹	2.75%	2.75%
Projected Return on Common Equity	10.31%	12.41%

¹ WSJ.com on December 31, 2014

² The betas are based on staff's judgment in conjunction with the results of the Beta Analysis. See explanation contained in the Industry Notes.

2015 Capitalization Rate Study
Electric Generation Facilities
Capital Asset Pricing Model - Ex Post

Component	Types of Facilities	
	Modern Technology	Older Technology
Common Stock Returns, S&P 500 (1928 - 2014) ¹	11.53%	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	5.28%	5.28%
Risk Premium	6.25%	6.25%
Beta ²	0.90	1.15
Adjusted Risk Premium	5.63%	7.19%
Risk Free Return - 30 Year Treasury Bonds ³	2.75%	2.75%
Projected Return on Common Equity	8.38%	9.94%

¹ Damodaran Online, January 5, 2015

² The betas are based on staff's judgment in conjunction with the results of the Beta Analysis. See explanation contained in the Industry Notes.

³ WSJ.com on December 31, 2014

2015 Capitalization Rate Study
Electric Generation Facilities
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DvYld+ DvGrth (h+i)	DvYld+ ErngsGrth (h+j)
<u>Merchant Generators</u>												
B+	Calpine Corp.	22.13	0.75	1.75	0.00	0.00	0.00%	0.00%	52.27%	3.39%	0.00%	52.27%
B+	NRG Energy, Inc.	26.95	1.65	1.00	0.54	0.56	2.08%	18.00%	7.83%	6.12%	20.08%	9.91%
B	AES Corp.	13.77	1.40	1.25	0.20	0.24	1.74%	27.50%	5.27%	10.17%	29.24%	7.01%
C	Atlantic Power	2.71	-0.55	-1.55	0.26	0.12	4.43%	-22.50%	0.00%	-20.30%	-18.07%	4.43%
<u>Diversified Electric Utilities</u>												
A	Duke Energy	83.54	4.65	4.20	3.15	3.21	3.84%	2.00%	4.87%	5.57%	5.84%	8.71%
A	NextEra Energy, Inc.	106.29	5.50	4.60	2.90	3.08	2.90%	8.00%	6.43%	5.17%	10.90%	9.33%
B++	Xcel Energy Inc.	35.92	2.05	1.95	1.20	1.26	3.51%	5.00%	4.67%	5.71%	8.51%	8.17%
Mean							2.64%	5.43%	11.62%	2.26%	8.07%	14.26%
Median							2.90%	5.00%	5.27%	5.57%	8.51%	8.71%
Weighted Average											9.66%	11.32%
Merrill Lynch Required Return - Independent Power Producers & Energy Traders												9.60%

Sources: Columns a, b, d, e, f, g and i were extracted from Value Line.

Column c was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

Column j represents the average estimated earnings growth extracted from Value Line, Zacks.com and ThomsonReuters.com.

**2015 Capitalization Rate Study
Electric Generation Facilities
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
	<u>Merchant Generators</u>				
B+	Calpine Corp.	98.00%	17.80%	41.00%	52.27%
B+	NRG Energy, Inc.	27.00%	-5.60%	2.10%	7.83%
B	AES Corp.	10.50%	3.10%	2.20%	5.27%
C	Atlantic Power	NMF	NMF	NMF	0.00%
	<u>Diversified Electric Utilities</u>				
A	Duke Energy	5.00%	4.80%	4.80%	4.87%
A	NextEra Energy, Inc.	6.00%	6.60%	6.70%	6.43%
B++	Xcel Energy Inc.	5.50%	4.20%	4.30%	4.67%
	Mean	25.33%	5.15%	10.18%	11.62%
	Median	8.25%	4.50%	4.55%	5.27%
	Weighted Average				8.97%
	Merrill Lynch 5 Year Growth Estimate - Independent Power Producers & Energy Traders				21.20%

Sources: Columns a, b and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Electric Generation Facilities
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/2014	Mkt Value Equity (\$million)	L.T. Debt (\$million)	Pfd Stock (\$million)	Common Equity (\$million)	Total Capital (\$million)	L.T. Debt %	Pfd Stock %	Common Equity %	Debt Equity Ratio
<u>Merchant Generators</u>												
B+	Calpine Corp.	397,985,534	22.13	8,807.42	11,260.00	0.00	8,807.42	20,067.42	56.11%	0.00%	43.89%	1.28
B+	NRG Energy, Inc.	324,024,097	26.95	8,732.45	19,919.00	249.00	8,732.45	28,900.45	68.92%	0.86%	30.22%	2.22
B	AES Corp.	715,221,508	13.77	9,848.60	18,719.00	0.00	9,848.60	28,567.60	65.53%	0.00%	34.47%	1.90
C	Atlantic Power	120,806,916	2.71	327.39	1,764.50	221.30	327.39	2,313.19	76.28%	9.57%	14.15%	3.22
Mean									66.71%	2.61%	30.68%	2.15
Median									67.22%	0.43%	32.35%	2.06
Weighted Average									64.70%	0.59%	34.71%	1.90
<u>Diversified Electric Utilities</u>												
A	Duke Energy	707,290,608	83.54	59,087.06	38,702.00	0.00	59,087.06	97,789.06	39.58%	0.00%	60.42%	0.65
A	NextEra Energy, Inc.	436,482,306	106.29	46,393.70	24,853.00	0.00	46,393.70	71,246.70	34.88%	0.00%	65.12%	0.54
B++	Xcel Energy Inc.	505,370,152	35.92	18,152.90	11,753.00	0.00	18,152.90	29,905.90	39.30%	0.00%	60.70%	0.65
Mean									37.92%	0.00%	62.08%	0.61
Median									39.30%	0.00%	60.70%	0.65
Weighted Average									37.85%	0.00%	62.15%	0.61
Damodaran Online - Power Industry									43.1%	0.0%	56.9%	0.76
Damodaran Online - Utility (General) Industry									38.0%	0.0%	62.0%	0.61
Fidelity.com Research Independent Power Producers & Energy Traders												2.72
Fidelity.com Research Electric Utilities												1.35

Sources: Columns a, b, c, f and g were extracted from Value Line.

Column d was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Electric Generation Facilities
Beta Analysis

a	b	c	d	e	f	g	h	i
Value		Value		Standard		Company	Debt	
Line		Line	Zacks	& Poor's	Average	Tax	Equity	Unlevered
Rating	Company Name	Beta	Beta	Beta	Beta	Rate	Ratio ¹	Beta ²
<u>Merchant Generators</u>								
B+	Calpine Corp.	0.85	0.71	0.71	0.76	0.15	1.25	0.40
B+	NRG Energy, Inc.	0.90	0.64	0.62	0.72	0.30	1.97	0.33
B	AES Corp.	1.15	1.11	1.11	1.12	0.25	1.99	0.50
C	Atlantic Power	0.85	0.75	0.34	0.65	0.00	2.21	0.22
	Mean				0.81	0.18	1.86	0.36
	Median				0.74	0.20		0.36
	Weighted				0.87	0.24		0.40
<u>Diversified Electric Utility</u>								
A	Duke Energy	0.60	0.18	0.23	0.34	0.33	0.63	0.24
A	NextEra Energy, Inc.	0.70	0.40	0.44	0.51	0.32	0.66	0.35
B++	Xcel Energy Inc.	0.70	0.29	0.31	0.43	0.35	0.71	0.30
	Mean	0.67	0.29	0.33	0.43	0.33	0.67	0.30
	Median	0.70	0.29	0.31	0.43	0.33		0.30
	Weighted				0.41	0.33		0.29
	Merchant Generators Relevered Beta based on 40% Debt Capital Structure						0.57	³
	Diversified Electric Utilities Relevered Beta based on 40% Debt Capital Structure						0.40	³
	Merrill Lynch Adjusted Beta Independent Power Producers & Energy Traders						0.86	
	Damodaran Online - Cost of Capital by Sector - Power Industry Beta						0.83	

Sources: Columns a, b, c and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from Standard and Poor's Stock Reports.

¹ Average Debt to Equity Ratio over the last five years.

² Unlevered Beta = Corrected Beta/[1+(1-tc)(D/E)]; where D/E is the debt to equity ratio, tc is the company's 2014 tax rate.

³ Relevered Beta = [Unlevered Beta][1+(1-tp)(D/E)]; where D/E is the debt to equity ratio, tp is a prospective purchaser's tax rate (assumed to be 40%).

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Telecommunications Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
Local Exchange Companies								
279	Pacific Bell Telephone Company	A++	A2	70%	30%	12.09%	3.95%	9.65%
201	Verizon California, Inc.	A++	A3	70%	30%	12.09%	4.21%	9.73%
284	Citizens Telecommunications Company of California, Inc.	B	Not Rated	65%	35%	13.14%	4.88%	10.25%
294	SureWest Telephone	C++	Not Rated	65%	35%	13.14%	4.88%	10.25%
	Other Local Exchange Companies	Not Rated	Not Rated	65%	35%	15.50%	5.03%	11.83%
Wireless Companies								
2606	AT&T Mobility LLC	A++	A2	70%	30%	11.57%	3.95%	9.28%
2532	Los Angeles SMSA Ltd., Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2552	Fresno MSA Limited Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2559	Cellco Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2669	California RSA #4 Partnership	A++	A3	70%	30%	11.57%	4.21%	9.36%
2748	T-Mobile West, LLC	B	Not Rated	65%	35%	12.88%	5.03%	10.13%
2720	Sprint Telephony PCS, L.P.	C++	B3	65%	35%	14.71%	5.74%	11.57%
	Other Wireless Companies ¹	Not Rated	Not Rated	55%	45%	16.81%	7.26%	12.51%
	Wireless Reseller Companies	Not Rated	Not Rated	55%	45%	18.90%	7.77%	13.89%
Interexchange Companies								
2310	AT&T Communications	A++	A2	70%	30%	12.88%	3.95%	10.20%
2274	MCI Communications Services, Inc.	A++	A3	70%	30%	12.88%	4.21%	10.28%
2372	MCI Metro Access Transmission Services, LLC	A++	A3	70%	30%	12.88%	4.21%	10.28%
2463	CenturyLink, Inc.	B++	Baa3	65%	35%	14.45%	4.88%	11.10%
2014	Sprint Communications Company, L.P.	C++	B3	60%	40%	16.81%	5.74%	12.38%
7761	Level 3 Communications, LLC	C++	Caa2	60%	40%	16.81%	7.26%	12.99%
	Other Interexchange Carriers	Not Rated	Not Rated	55%	45%	21.52%	7.26%	15.10%
	Other Interexchange Resellers	Not Rated	Not Rated	55%	45%	24.66%	7.77%	17.06%

¹ Includes Radio Telephone and Paging Companies

**2015 Capitalization Rate Study
Telecommunications Companies
Industry Notes**

- Staff conducted a consolidated capitalization rate study for the local exchange, wireless, and interexchange industries due to the increasing convergence of these three industries. Separate capitalization rates were estimated for the companies in each of the three industries based on the relative risk experienced by each group of companies within their respective industries.
- Staff relied on the Discounted Cash Flow Model (DCF) and Capital Asset Pricing Model (CAPM Ex Post and Ex Ante) in the development of equity rates.
- Leap Wireless was removed from the Capitalization Rate Study sample in 2015 as it was acquired by AT&T Inc. in 2014.
- tw telecom inc. was removed from the Capitalization Rate Study sample in 2015 as it was acquired by Level 3 Communications, Inc. in 2014.
- Alaska Communications Systems Group was removed from the Capitalization Rate Study sample in 2015 as it was removed by Value Line in 2014.
- Alteva, Inc. and General Communication, Inc. were removed from the Capitalization Rate Study sample in 2015 due to lack of data from various sources used for the study.

2015 Capitalization Rate Study
Telecommunications Companies - Local Exchange
Flotation Cost Adjustment

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A++	11.55%	4.50%	12.09%	Aa2	3.81%	1.70%	3.88%
B	12.55%	4.50%	13.14%	Aa3	3.83%	1.70%	3.90%
C++	14.80%	4.50%	15.50%	A1	3.86%	1.70%	3.92%
Other Local Exchange Companies	14.80%	4.50%	15.50%	A2	3.88%	1.70%	3.95%
				A3	4.14%	1.70%	4.21%
				Baa1	4.40%	1.70%	4.48%
				Baa2	4.66%	1.70%	4.74%
				Baa3	4.80%	1.70%	4.88%
				Not Rated	4.94%	1.70%	5.03%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

2015 Capitalization Rate Study
Telecommunications Companies - Wireless
Flotation Cost Adjustment

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A++	11.05%	4.50%	11.57%	Aa2	3.81%	1.70%	3.88%
B	12.30%	4.50%	12.88%	Aa3	3.83%	1.70%	3.90%
C++	14.05%	4.50%	14.71%	A1	3.86%	1.70%	3.92%
Other Wireless Companies ¹	16.05%	4.50%	16.81%	A2	3.88%	1.70%	3.95%
Wireless Reseller Companies	18.05%	4.50%	18.90%	A3	4.14%	1.70%	4.21%
				Baa1	4.40%	1.70%	4.48%
				Baa2	4.66%	1.70%	4.74%
				Baa3	4.80%	1.70%	4.88%
				Ba1	4.94%	1.70%	5.03%
				Ba2	5.08%	1.70%	5.17%
				Ba3	5.22%	1.70%	5.31%
				B1	5.36%	1.70%	5.45%
				B2	5.50%	1.70%	5.60%
				B3	5.64%	1.70%	5.74%
				Not Rated	7.14%	1.70%	7.26%
				Not Rated	7.64%	1.70%	7.77%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

¹ Includes Radio Telephone and Paging Companies

2015 Capitalization Rate Study
Telecommunications Companies - Interexchange
Flotation Cost Adjustment

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A++	12.30%	4.50%	12.88%	Aa2	3.81%	1.70%	3.88%
B++	13.80%	4.50%	14.45%	Aa3	3.83%	1.70%	3.90%
C++	16.05%	4.50%	16.81%	A1	3.86%	1.70%	3.92%
Other Interexchange Carriers	20.55%	4.50%	21.52%	A2	3.88%	1.70%	3.95%
Other Interexchange Resellers	23.55%	4.50%	24.66%	A3	4.14%	1.70%	4.21%
				Baa1	4.40%	1.70%	4.48%
				Baa2	4.66%	1.70%	4.74%
				Baa3	4.80%	1.70%	4.88%
				Ba1	4.94%	1.70%	5.03%
				Ba2	5.08%	1.70%	5.17%
				Ba3	5.22%	1.70%	5.31%
				B1	5.36%	1.70%	5.45%
				B2	5.50%	1.70%	5.60%
				B3	5.64%	1.70%	5.74%
				Not Rated	7.14%	1.70%	7.26%
				Not Rated	7.64%	1.70%	7.77%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

2015 Capitalization Rate Study
Telecommunications Companies
Comparison of Return on Common Equity

Description	A++			B++, B+, B			C++, C+		
	2015	2014	Change	2015	2014	Change	2015	2014	Change
Discounted Cash Flow Analysis									
E/P Ratio - Mean	8.16%	7.15%	1.01%	1.76%	4.84%	-3.08%	0.29%	4.58%	-4.30%
E/P Ratio - Median	8.16%	7.15%	1.01%	2.43%	5.38%	-2.95%	3.09%	4.58%	-1.50%
Dividend Yield + Dividend Growth - Mean	8.19%	7.77%	0.42%	4.35%	6.73%	-2.38%	1.39%	7.90%	-6.50%
Dividend Yield + Dividend Growth - Median	8.19%	7.77%	0.42%	5.13%	6.78%	-1.65%	0.00%	7.90%	-7.90%
Weighted Average (Div. Yield + Div. Growth)	8.05%	7.84%	0.21%	3.63%	6.67%	-3.04%	5.57%	7.90%	-2.33%
Dividend Yield + Earnings Growth - Mean	12.21%	12.61%	-0.40%	10.07%	11.36%	-1.28%	11.36%	14.36%	-3.00%
Dividend Yield + Earnings Growth - Median	12.21%	12.61%	-0.40%	11.49%	10.06%	1.43%	10.93%	14.36%	-3.43%
Weighted Average (Div. Yield + Earn. Growth)	12.33%	12.57%	-0.24%	10.05%	10.01%	0.05%	23.57%	14.36%	9.21%
CAPM Analysis									
Ex Ante	7.79%	8.27%	-0.48%	9.05%	9.17%	-0.12%	11.07%	10.62%	0.44%
Ex Post	6.50%	7.87%	-1.37%	7.44%	8.69%	-1.25%	8.94%	10.01%	-1.07%
Recommended Rates									
Local Exchange	11.55%	11.70%	-0.15%	12.55%	12.70%	-0.15%	14.80%	14.95%	-0.15%
Wireless	11.05%	11.20%	-0.15%	12.30%	12.45%	-0.15%	14.05%	14.20%	-0.15%
Interexchange	12.30%	12.45%	-0.15%	13.80%	13.95%	-0.15%	16.05%	16.20%	-0.15%

**2015 Capitalization Rate Study
Telecommunications Companies
Equity Rates**

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DivYld+ DivGrw (h+i)	DivYld+ ErngsGrw (h+j)
A++	AT&T Inc.	33.59	2.75	2.55	1.84	1.88	5.60%	4.00%	5.47%	8.19%	9.60%	11.06%
A++	Verizon Communications	46.78	3.80	3.40	2.16	2.24	4.79%	2.00%	8.57%	8.12%	6.79%	13.36%
	Mean						5.19%	3.00%	7.02%	8.16%	8.19%	12.21%
	Median						5.19%	3.00%	7.02%	8.16%	8.19%	12.21%
	Weighted Average										8.05%	12.33%
B++	Atlantic Tele-Network, Inc.	67.59	3.30	3.00	1.10	1.18	1.75%	6.50%	10.50%	4.88%	8.25%	12.25%
B++	CenturyLink, Inc.	39.58	2.60	2.63	2.16	2.16	5.46%	-3.50%	6.03%	6.57%	5.46%	11.49%
B+	U.S. Cellular	39.83	-0.80	-0.95	0.00	0.00	0.00%	0.00%	2.50%	-2.01%	0.00%	2.50%
B	Frontier Communications	6.67	0.30	0.20	0.40	0.40	6.00%	-4.00%	16.35%	4.50%	2.00%	22.35%
B	NTELOS Holdings	4.19	-0.15	0.05	1.26	0.00	0.00%	0.00%	3.00%	-3.58%	0.00%	3.00%
B	Shenandoah Telecom	31.25	1.60	1.40	0.47	0.51	1.63%	3.50%	10.75%	5.12%	5.13%	12.38%
B	T-Mobile US, Inc.	26.94	0.30	-0.30	0.00	0.00	0.00%	0.00%	6.05%	1.11%	0.00%	6.05%
B	Telephone & Data Systems	25.25	-0.80	-1.45	0.54	0.56	2.22%	4.00%	13.00%	-3.17%	6.22%	15.22%
B	Windstream Corp.	8.24	0.20	0.10	1.00	1.00	12.14%	0.00%	-6.73%	2.43%	12.14%	5.40%
	Mean						3.24%	0.72%	6.83%	1.76%	4.35%	10.07%
	Median						1.75%	0.00%	6.05%	2.43%	5.13%	11.49%
	Weighted Average										3.63%	10.05%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.
Column c was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.
Column j is an average of Value Line, Zacks.com, and ThomsonReuters.com.

**2015 Capitalization Rate Study
Telecommunications Companies
Equity Rates**

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. 2015 Earnings	2014 Earnings	2014 Dividends	Est. 2015 Dividends	Dividend Yield (g/c)	Est. Dividend Growth	Est. Earnings Growth	E/P Ratio (d/c)	DivYld+ DivGrw (h+i)	DivYld+ ErngsGrw (h+j)
C++	Consolidated Communications	27.83	0.95	0.80	1.55	1.55	5.57%	0.00%	18.00%	3.41%	5.57%	23.57%
C++	Level 3 Communications, Inc.	49.38	1.50	1.30	0.00	0.00	0.00%	0.00%	5.00%	3.04%	0.00%	5.00%
C++	Sprint Corporation	4.15	-0.35	-0.45	0.00	0.00	0.00%	0.00%	16.87%	-8.43%	0.00%	16.87%
C+	Cincinnati Bell	3.19	0.10	0.00	0.00	0.00	0.00%	0.00%	0.00%	3.13%	0.00%	0.00%
	Mean						5.57%	0.00%	9.97%	0.29%	1.39%	11.36%
	Median						5.57%	0.00%	10.93%	3.09%	0.00%	10.93%
	Weighted Average										5.57%	23.57%

Sources: Columns a, d, e, f, g and i were extracted from Value Line.
Column c was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.
Column j is an average of Value Line, Zacks.com, and ThomsonReuters.com.

**2015 Capitalization Rate Study
Telecommunications Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
A++	AT&T Inc.	7.00%	4.80%	4.60%	5.47%
A++	Verizon Communications	8.00%	9.40%	8.30%	8.57%
	Mean	7.50%	7.10%	6.45%	7.02%
	Median	7.50%	7.10%	6.45%	7.02%
	Weighted Average				7.18%
B++	Atlantic Tele-Network, Inc.	10.50%	NMF	NMF	10.50%
B++	CenturyLink, Inc.	19.50%	-1.50%	0.10%	6.03%
B+	U.S. Cellular	4.50%	0.00%	3.00%	2.50%
B	Frontier Communications	21.00%	11.70%	NMF	16.35%
B	NTELOS Holdings	NMF	3.00%	3.00%	3.00%
B	Shenandoah Telecom	16.50%	NMF	5.00%	10.75%
B	T-Mobile US, Inc.	NMF	5.50%	6.60%	6.05%
B	Telephone & Data Systems	4.00%	14.00%	21.00%	13.00%
B	Windstream Corp.	6.50%	-2.00%	-24.70%	-6.73%
	Mean	11.79%	4.39%	2.00%	6.83%
	Median	10.50%	3.00%	3.00%	6.05%
	Weighted Average				6.15%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

**2015 Capitalization Rate Study
Telecommunications Companies
Long Term Earnings Growth**

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
C++	Consolidated Communications	18.00%	NMF	NMF	18.00%
C++	Level 3 Communications, Inc.	NMF	8.00%	40.40%	24.20%
C++	Sprint Corporation	NMF	5.00%	5.00%	5.00%
C+	Cincinnati Bell	28.50%	11.00%	11.10%	16.87%
	Mean	23.25%	8.00%	18.83%	16.02%
	Median	23.25%	8.00%	11.10%	17.43%
	Weighted Average				13.82%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Telecommunications Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Market Value Equity (\$million)	Long Term Debt (\$million)	Preferred Stock (\$million)	Common Stock (\$million)	Total Capital (\$million)	L.T. Debt %	Preferred Stock %	Common Stock %
A++	AT&T Inc.	5,187,000,000	33.59	174,231.33	70,516.00	0.00	174,231.33	244,747.33	28.81%	0.00%	71.19%
A++	Verizon Communications	4,149,723,706	46.78	194,124.07	107,627.00	0.00	194,124.07	301,751.07	35.67%	0.00%	64.33%
	Mean								32.24%	0.00%	67.76%
	Median								32.24%	0.00%	67.76%
	Weighted Average								32.60%	0.00%	67.40%
B++	Atlantic Tele-Network, Inc.	15,919,318	67.59	1,075.99	0.00	0.00	1,075.99	1,075.99	0.00%	0.00%	100.00%
B++	CenturyLink, Inc.	570,705,291	39.58	22,588.52	19,982.00	0.00	22,588.52	42,570.52	46.94%	0.00%	53.06%
B+	U.S. Cellular	84,150,071	39.83	3,351.70	876.80	0.00	3,351.70	4,228.50	20.74%	0.00%	79.26%
B	Frontier Communications Corp	1,002,081,000	6.67	6,683.88	9,185.60	0.00	6,683.88	15,869.48	57.88%	0.00%	42.12%
B	NTELOS Holdings Corp	21,606,257	4.19	90.53	520.80	0.00	90.53	611.33	85.19%	0.00%	14.81%
B	Shenandoah Telecom	24,113,184	31.25	753.54	207.00	0.00	753.54	960.54	21.55%	0.00%	78.45%
B	T-Mobile US, Inc.	807,350,358	26.94	21,750.02	24,394.00	0.00	21,750.02	46,144.02	52.86%	0.00%	47.14%
B	Telephone & Data Systems	107,903,618	25.25	2,724.57	1,718.70	0.80	2,724.57	4,444.07	38.67%	0.02%	61.31%
B	Windstream Corp.	602,763,234	8.24	4,966.77	8,568.60	0.00	4,966.77	13,535.37	63.31%	0.00%	36.69%
	Mean								43.02%	0.00%	56.98%
	Median								46.94%	0.00%	53.06%
	Weighted Average								50.57%	0.00%	49.43%

Sources: Columns a, c, f, and g were extracted from Value Line.

Column d was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

**2015 Capitalization Rate Study
Telecommunications Companies
Capital Structure**

a	b	c	d	e	f	g	h	i	j	k	l
Value Line Rating	Company Name	Common Stock Outstanding	Common Stock Price 12/31/14	Market Value Equity (\$million)	Long Term Debt (\$million)	Preferred Stock (\$million)	Common Stock (\$million)	Total Capital (\$million)	L.T. Debt %	Preferred Stock %	Common Stock %
C++	Consolidated Communications	50,433,553	27.83	1,403.57	1,407.40	0.00	1,403.57	2,810.97	50.07%	0.00%	49.93%
C++	Level 3 Communications, Inc.	335,961,229	49.38	16,589.77	8,856.00	0.00	16,589.77	25,445.77	34.80%	0.00%	65.20%
C++	Sprint Corporation	3,955,981,006	4.15	16,417.32	31,458.00	0.00	16,417.32	47,875.32	65.71%	0.00%	34.29%
C+	Cincinnati Bell	209,237,944	3.19	667.47	1,887.00	129.40	667.47	2,683.87	70.31%	4.82%	24.87%
Mean									55.22%	1.21%	43.57%
Median									57.89%	0.00%	42.11%
Weighted Average									55.33%	0.16%	44.51%

Sources: Columns a, c, f, and g were extracted from Value Line.

Column d was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

**2015 Capitalization Rate Study
Telecommunications Companies
Capital Asset Pricing Model - Ex Ante**

Component	Value Line Rating		
	A++	B++, B+, B	C++, C+
Expected Future Return, S&P 500	11.15%	11.15%	11.15%
Less: Risk Free Return - 30 Year Treasury Bonds ¹	2.75%	2.75%	2.75%
Risk Premium	8.40%	8.40%	8.40%
Beta ²	0.60	0.75	0.99
Adjusted Risk Premium	5.04%	6.30%	8.32%
Risk Free Return - 30 Year Treasury Bonds ¹	2.75%	2.75%	2.75%
Projected Equity Yield	7.79%	9.05%	11.07%

¹ WSJ.com, December 31, 2014

² The estimated betas were derived from a representative sample of telecommunications companies with similar ratings.

**2015 Capitalization Rate Study
Telecommunications Companies
Capital Asset Pricing Model - Ex Post**

Component	Value Line Rating		
	A++	B++, B+, B	C++, C+
Common Stock Return, S&P 500 (1928-2014) ¹	11.53%	11.53%	11.53%
Less: 10 Year Treasury Bonds (1928-2014) ¹	5.28%	5.28%	5.28%
Risk Premium	6.25%	6.25%	6.25%
Beta ²	0.60	0.75	0.99
Adjusted Risk Premium	3.75%	4.69%	6.19%
Risk Free Return - 30 Year Treasury Bonds ³	2.75%	2.75%	2.75%
Projected Equity Yield	6.50%	7.44%	8.94%

¹ Damodaran Online, January 5, 2015

² The estimated betas were derived from a representative sample of telecommunications companies with similar ratings.

³ WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Telecommunications Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Thomson Beta	Average Beta	Company Tax Rate	Debt Equity Ratio	Unlevered Beta ¹
A++	AT&T Inc.	0.75	0.44	0.56	0.58	0.35	0.36	0.47
A++	Verizon Communications	0.70	0.43	0.59	0.57	0.35	0.49	0.43
	Mean	0.73	0.44	0.58	0.58		0.43	0.45
	Median	0.73	0.44	0.58	0.58		0.43	0.45
	Weighted Average				0.58		0.43	0.45
B++	Atlantic Tele-Network, Inc.	1.00	1.32	0.73	1.02	0.34	0.27	0.86
B++	CenturyLink, Inc.	0.75	0.62	0.65	0.67	0.35	0.84	0.44
B+	U.S. Cellular	1.00	0.68	0.56	0.75	0.40	0.25	0.65
B	Frontier Communications Corp	0.90	0.67	0.75	0.77	0.38	1.49	0.40
B	NTELOS Holdings Corp	0.95	1.31	1.14	1.13	0.41	2.22	0.49
B	Shenandoah Telecom	1.05	1.66	1.55	1.42	0.41	0.47	1.11
B	T-Mobile US, Inc.	NMF	1.26	1.02	1.14	0.40	1.97	0.52
B	Telephone & Data Systems	1.20	1.15	0.77	1.04	0.33	0.57	0.75
B	Windstream Corp.	0.90	0.81	0.64	0.78	0.35	1.47	0.40
	Mean	0.97	1.05	0.87	0.97		1.06	0.63
	Median	0.98	1.15	0.75	1.02		0.84	0.52
	Weighted Average				0.89		1.36	0.49

Sources: Columns a, c, and g were extracted from Value Line.

Column d was extracted from Zacks.com.

Column e was extracted from ThomsonReuters.com.

Column h is a 5-year average Debt to Equity Ratio, where historical information is available.

¹ Unlevered Beta = Average Beta/[1+(1-tc)(D/E)]; where D/E is the debt to equity ratio, tc is the company's most recent tax rate.

2015 Capitalization Rate Study
Telecommunications Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Thomson Beta	Average Beta	Company Tax Rate	Debt Equity Ratio	Unlevered Beta ¹
C++	Consolidated Communications	0.75	0.82	1.04	0.87	0.36	1.50	0.44
C++	Level 3 Communications, Inc.	1.05	1.50	1.31	1.29	0.15	2.19	0.45
C++	Sprint Corporation	1.15	1.19	1.12	1.15	0.40	1.54	0.60
C+	Cincinnati Bell	1.15	1.24	1.24	1.21	0.40	3.51	0.39
	Mean	1.03	1.19	1.18	1.13		2.18	0.47
	Median	1.10	1.22	1.18	1.18		1.87	0.45
	Weighted Average				1.19		1.82	0.54

		A++	B++, B+, B	C++, C+
A++:	Relevered beta based on 30% debt capital structure	0.57 ²	-----	-----
	Relevered beta based on 30% debt capital structure and a weighted average beta	0.57 ²	-----	-----
B++, B+, B:	Relevered beta based on 35% debt capital structure	-----	0.83 ²	-----
	Relevered beta based on 35% debt capital structure and a weighted average beta	-----	0.64 ²	-----
C++, C+:	Relevered beta based on 40% debt capital structure	-----	-----	0.66 ²
	Relevered beta based on 40% debt capital structure and a weighted average beta	-----	-----	0.75 ²

Sources: Columns a, c, and g were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.
Column h is a 5-year average Debt to Equity Ratio, where historical information is available.

¹ Unlevered Beta = Average Beta/[1+(1- t_c)(D/E)]; where D/E is the debt to equity ratio, t_c is the company's most recent tax rate.

² Relevered Beta = [Unlevered Beta][1+(1- t_p)(D/E)]; where D/E is the debt to equity ratio, t_p is the prospective purchaser's tax rate (assumed to be 40%).

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Pipeline Companies**

SBE No.	Company Name	Ratings		Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Equity	Debt	
402	CALNEV Pipe Line, LLC	NR-1	NR-b	70%	30%	12.57%	4.77%	10.23%
461	SFPP, L.P.	NR-1	NR-b	70%	30%	12.57%	4.77%	10.23%
479	Chevron Pipe Line Company	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
480	Phillips 66 Pipeline LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
486	Pacific Pipeline System LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
492	San Pablo Bay Pipeline Company LLC	NR-2	NR-b	70%	30%	13.09%	4.77%	10.59%
	Other Pipeline Companies	NR-3	NR-c	70%	30%	14.14%	5.78%	11.63%

**2015 Capitalization Rate Study
Pipeline Companies
Industry Notes**

- Staff considered both the Capital Asset Pricing Model (CAPM Ex Post and Ex Ante) and the Discounted Cash Flow Model (DCF) in the development of equity rates. Within the DCF, the Dividend Yield and Earnings Growth are higher than historical norms and the amount of variability in the estimates makes it less reliable than in prior years.

**2015 Capitalization Rate Study
Pipeline Companies
Flotation Cost Adjustment**

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
NR-1	12.00%	4.50%	12.57%	NR-b	4.69%	1.70%	4.77%
NR-2	12.50%	4.50%	13.09%	NR-c	5.69%	1.70%	5.78%
NR-3	13.50%	4.50%	14.14%				

Cost of Capital Adjusted for Flotation Costs = $\frac{k_u}{1 - f}$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

NR-1: Not-Rated-1 pipelines are not directly traded because they are subsidiaries of larger companies. These are larger common carrier pipelines transmitting refined petroleum products.

NR-2: Not-Rated-2 pipelines are not directly traded because they are subsidiaries of larger companies. These are larger common carrier pipelines transmitting crude oil.

NR-3: Not-Rated-3 pipelines are smaller companies transporting petroleum products or crude oil.

NR-b: Although these companies do not have rated debt securities, the rating class "Baa" was chosen to represent these subsidiaries of larger corporations.

NR-c: Issues of this size are not normally rated. An additional increment of 100 basis points (before flotation costs) has been added to the "Baa" rate.

2015 Capitalization Rate Study
Pipeline Companies
Comparison of Return on Common Equity

Description	2015	2014	Change
Discounted Cash Flow Analysis:			
E/P Ratio - Mean	3.49%	3.58%	-0.09%
E/P Ratio - Median	3.55%	3.63%	-0.08%
Dividend Yield + Dividend Growth - Mean	12.03%	10.49%	1.54%
Dividend Yield + Dividend Growth - Median	10.50%	10.72%	-0.22%
Dividend Yield + Earnings Growth - Mean	17.39%	11.90%	5.49%
Dividend Yield + Earnings Growth - Median	17.73%	12.68%	5.05%
CAPM Analysis:			
Capital Asset Pricing Model - Ex Ante	8.68%	8.28%	0.40%
Capital Asset Pricing Model - Ex Post	7.16%	7.88%	-0.72%
State Assessed Properties Division Recommendation:	12.00%	11.75%	0.25%

2015 Capitalization Rate Study
Pipeline Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l
Value Line		Stock				2015	2015	2015	E/P	Div Yld+	Div Yld+
Rating	Company Name	Price	2014	2014	2015	Dividend	Hist. Div	Avg. Erns	Ratio	Div Gwth	Erns Gwth
		12/31/14	Earnings	Dividends	Est Div	Yield	Growth	Growth	(d/c)	(g+h)	(g+i)
B++	Enbridge Energy Partners, L.P.	39.90	1.05	2.17	1.36	3.41%	2.50%	18.70%	2.63%	5.91%	22.11%
B++	Kinder Morgan, Inc.	42.31	1.25	1.70	2.00	4.73%	16.50%	16.00%	2.95%	21.23%	20.73%
B+	Buckeye Partners, L.P.	75.66	3.20	4.28	4.36	5.76%	1.50%	6.23%	4.23%	7.26%	12.00%
B+	Enterprise Product Partners, L.P.	36.12	1.50	1.43	1.53	4.24%	9.50%	10.50%	4.15%	13.74%	14.74%
		Mean					7.50%	12.86%	3.49%	12.03%	17.39%
		Median					6.00%	13.25%	3.55%	10.50%	17.73%
		Weighted Average									17.65%
B++	Enbridge Energy Partners, L.P.	39.90	1.05	2.17	1.36	3.41%	2.50%	18.70%	2.63%	5.91%	22.11%
B+	Buckeye Partners, L.P.	75.66	3.20	4.28	4.36	5.76%	1.50%	6.23%	4.23%	7.26%	12.00%
B+	Enterprise Product Partners, L.P.	36.12	1.50	1.43	1.53	4.24%	9.50%	10.50%	4.15%	13.74%	14.74%
		Mean					4.50%	11.81%	3.67%	8.97%	16.28%
		Median					2.50%	10.50%	4.15%	7.26%	14.74%
		Weighted Average									15.62%

Sources: Columns a, b, d, e, f and h were extracted from the Value Line.

Column c was extracted from the Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

Column i is an average of Value Line, Zacks.com, and ThomsonReuters.com.

2015 Capitalization Rate Study
Pipeline Companies
Long Term Earnings Growth

a	b	c	d	e	f
Value Line					
Rating	Company Name	Value Line	Zacks	Thomson	Average
B++	Enbridge Energy Partners, L.P.	-9.50%	N/A	46.90%	18.70%
B++	Kinder Morgan, Inc.	16.00%	9.50%	9.00%	11.50%
B+	Buckeye Partners, L.P.	5.50%	8.20%	5.00%	6.23%
B+	Enterprise Product Partners, L.P.	10.50%	7.70%	6.90%	8.37%
	Mean	5.63%	8.47%	16.95%	11.20%
	Median	8.00%	8.20%	7.95%	9.93%
	Weighted Average				10.47%
B++	Enbridge Energy Partners, L.P.	-9.50%	N/A	46.90%	18.70%
B+	Buckeye Partners, L.P.	5.50%	8.20%	5.00%	6.23%
B+	Enterprise Product Partners, L.P.	10.50%	7.70%	6.90%	8.37%
	Mean	2.17%	7.95%	19.60%	11.10%
	Median	5.50%	7.95%	6.90%	8.37%
	Weighted Average				9.80%

Sources: Columns a, b, and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

2015 Capitalization Rate Study
Pipeline Companies
Capital Asset Pricing Model - Ex Ante

Component	Industry Computation
Expected Future Return, S&P 500	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Risk Premium	8.40%
Relevered Beta ²	0.71
Adjusted Risk Premium	5.93%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Projected Return on Common Equity	8.68%

¹ WSJ.com on December 31, 2014

² Weighted average using betas from Value Line, Zacks.com, and Standard & Poor's for a representative sample of pipeline companies.

2015 Capitalization Rate Study
Pipeline Companies
Capital Asset Pricing Model - Ex Post

Component	Industry Computation
Common Stock Return, S&P 500 (1928 - 2014) ¹	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	5.28%
Risk Premium	6.25%
Relevered Beta ²	0.71
Adjusted Risk Premium	4.41%
Risk Free Return 30 Year Treasury Bonds ³	2.75%
Projected Return on Common Equity	7.16%

¹ Damodaran Online, January 5, 2015

² Weighted average using betas from Value Line, Zacks.com, and Standard & Poor's for a representative sample of pipeline companies.

³ WSJ.com on December 31, 2014

2015 Capitalization Rate Study
Pipeline Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Standard & Poor's Beta	Average Beta	Tax Rate	Debt Equity Ratio	Unlevered Beta ¹
B++	Enbridge Energy Partners, L.P.	0.75	0.49	0.53	0.59	0.40	0.48	0.46
B++	Kinder Morgan, Inc.	0.90	0.68	0.68	0.75	0.40	0.82	0.51
B+	Buckeye Partners, L.P.	0.70	0.50	0.54	0.58	0.40	0.38	0.47
B+	Enterprise Product Partners, L.P.	0.85	0.71	0.68	0.75	0.40	0.25	0.65
	Mean	0.80	0.60	0.61	0.67	0.40	0.48	0.52
	Median	0.80	0.59	0.61	0.67	0.40	0.43	0.49
	Weighted Average				0.72		0.51	0.56
	Relevered beta based on 30% Debt Capital Structure				0.65 ²			
	Relevered beta based on 30% Debt Capital Structure and a weighted average Beta				0.71 ²			

Sources: Columns a, b, and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from Standard & Poors.com.

¹ Unlevered Beta = Beta/[1+(1-t)(D/E)]; where D/E is the debt to equity ratio, t is the tax rate (assumed to be 40%)

² Relevered Beta = [Unlevered Beta][1+(1-t)(D/E)]; where D/E is the debt to equity ratio, t is the tax rate (assumed to be 40%)

2015 Capitalization Rate Study
Pipeline Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j
Value Line Rating	Moody Bond Rating	Company Name	Common Stock Outstanding (\$million)	Common Unit Price 12/31/14	Market Value Equity (\$million)	Long Term Debt (\$million)	Total Capital (\$million)	Long Term Debt %	Equity %
B++	NR	Enbridge Energy Partners, L.P.	329,294.80	39.90	13,138.86	6,301.90	19,440.76	32.42%	67.58%
B++	NR	Kinder Morgan, Inc.	1,028,229.50	42.31	43,504.39	35,600.00	79,104.39	45.00%	55.00%
B+	NR	Buckeye Partners, L.P.	127,022.60	75.66	9,610.53	3,663.90	13,274.43	27.60%	72.40%
B+	NR	Enterprise Product Partners, L.P.	1,935,026.90	36.12	69,893.17	17,706.50	87,599.67	20.21%	79.79%
		Total			136,146.95	63,272.30	199,419.25		
		Mean						31.31%	68.69%
		Median						30.01%	69.99%
		Weighted Average						31.73%	68.27%

Recommended Capital Structure for Common Carrier Pipelines for lien date January 1, 2015:

Debt - 30%
Equity - 70%

Sources: Columns a, d, and g were extracted from the Value Line Investment Survey Reports.

Column e was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Pipeline Companies
Debt Yield Rate

Average of Industrial and Public Utility Bond Yield:

Aa	Industrial/Utility Average	3.81%	
A	Industrial/Utility Average	3.98%	
		3.81%	Aa
		3.98%	A
Baa	Industrial/Utility Average	4.69%	
	Recommended	4.69%	Baa/Ba

	Bond Rating	Industrial	Public Utility	Average
	Aaa	3.73%	N/A	3.73%
	Aa	3.81%	3.81%	3.81%
	A	4.07%	3.88%	3.98%
	Baa	4.71%	4.66%	4.69%

Source: Moody's Daily Long-Term Corporate Bond Yield Averages as of December 31, 2014.

**California State Board of Equalization
State-Assessed Properties Division
2015 Capitalization Rate Study
Railroad Companies**

SBE No.	Company Name			Capital Structure		Rates of Return		Basic Cap Rate
		Financial	Bond	Common Equity	Debt	Common Equity	Debt	
804	BNSF Railway Company	A++	Baa2	80%	20%	12.83%	4.77%	11.21%
843	Union Pacific Railroad Company	A++	Baa2	80%	20%	12.83%	4.77%	11.21%
802	Central Oregon & Pacific Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
810	California Northern Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
813	Pacific Harbor Lines	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
822	Pacific Sun Railroad, LLC	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
826	Sacramento Valley Railroad, LLC	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
850	Modesto & Empire Traction Company	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
865	San Diego & Imperial Valley Railroad Co. Inc.	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
878	Stockton Terminal and Eastern Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
882	Trona Railway Co.	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
897	San Joaquin Valley Railroad Company	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
899	Arizona & California Railroad	NR-1	NR-1	60%	40%	14.92%	6.29%	11.47%
	Other Railroad Companies	NR-2	NR-2	60%	40%	15.18%	7.31%	12.03%

**2015 Capitalization Rate Study
Railroad Companies
Industry Notes**

- Staff relied upon the results of the following models in the development of equity rates:
 1. Discounted Cash Flow Model
 2. Capital Asset Pricing Model (Ex Post and Ex Ante)

**2015 Capitalization Rate Study
Railroad Companies
Flotation Cost Adjustment**

Equity				Debt			
Value Line Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate	Moody's Rating	Recommended Rate	Flotation Cost in %	Adjusted Rate
A++	12.25%	4.50%	12.83%	Baa2	4.69%	1.70%	4.77%
NR-1	14.25%	4.50%	14.92%	NR-1 ¹	6.19%	1.70%	6.29%
NR-2	14.50%	4.50%	15.18%	NR-2 ²	7.19%	1.70%	7.31%

$$\text{Cost of Capital Adjusted for Flotation Costs} = \frac{k_u}{1 - f}$$

Where: k_u = The cost of capital unadjusted for flotation costs

f = Flotation cost as a percentage of the value of securities issued

¹ NR-1: Represents short line railroad companies with stable historical income. An additional 150 basis points were added to the Baa2 bond rate to represent the additional risk premium.

² NR-2: Represents short line railroad companies without stable historical income patterns. An additional 250 basis points were added to the Baa2 bond rate to represent the additional risk premium.

2015 Capitalization Rate Study
Railroad Companies
Comparison of Return on Common Equity

Description	2015	2014	Change
E/P Ratio - Mean	5.93%	6.59%	-0.66%
E/P Ratio - Median	5.93%	6.53%	-0.59%
Dividend Yield + Dividend Growth - Mean	12.46%	15.30%	-2.83%
Dividend Yield + Dividend Growth - Median	13.26%	15.89%	-2.63%
Dividend Yield + Earnings Growth - Mean	13.34%	13.90%	-0.56%
Dividend Yield + Earnings Growth - Median	12.99%	13.50%	-0.51%
Capital Asset Pricing Model - Ex Post	9.73%	11.29%	-1.56%
Capital Asset Pricing Model - Ex Ante	12.14%	12.04%	0.10%
State-Assessed Properties Division Recommendation:	12.25%	13.00%	-0.75%

2015 Capitalization Rate Study
Railroad Companies
Equity Rates

a	b	c	d	e	f	g	h	i	j	k	l	m
Value Line Rating	Company Name	Stock Price 12/31/14	Est. Earnings 2015	Earnings 2014	Dividends 2014	Est. Dividends 2015	Div Yield 2015 (g/c)	Value Line Dividend Est Gwth	Average Est Erns Gwth	E/P Ratio (d/c)	Div Yld + Dv Gwth (h+i)	Div Yld + Erns Gwth (h+j)

Class 1 Railroads:

A++	Union Pacific Corp.	119.13	6.30	5.67	1.81	2.10	1.76%	11.50%	12.80%	5.29%	13.26%	14.56%	
A	Norfolk Southern Corp.	109.61	7.20	6.49	2.25	2.40	2.19%	7.50%	10.80%	6.57%	9.69%	12.99%	
B++	CSX Corp.	36.23	2.15	1.92	0.63	0.70	1.93%	12.50%	10.53%	5.93%	14.43%	12.47%	
							Mean	1.96%	10.50%	11.38%	5.93%	12.46%	13.34%
							Median	1.93%	11.50%	10.80%	5.93%	13.26%	12.99%
							Weighted Average				12.78%	13.77%	

Sources: Columns a, d, e, f, g and i were extracted from Value Line.

Column c was extracted from Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

Column j is an average of Value Line, Zacks.com and ThomsonReuters.com.

2015 Capitalization Rate Study
Railroad Companies
Long Term Earnings Growth

a	b	c	d	e	f
Value Line Rating	Company Name	Value Line	Zacks	Thomson	Average
Class 1 Railroads:					
A++	Union Pacific Corp.	11.00%	12.90%	14.50%	12.80%
A	Norfolk Southern Corp.	8.50%	12.40%	11.50%	10.80%
B++	CSX Corp.	11.50%	10.30%	9.80%	10.53%
	Mean	10.33%	11.87%	11.93%	11.38%
	Median	11.00%	12.40%	11.50%	10.80%
	Weighted Average				11.88%

Sources: Columns a and c were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

**2015 Capitalization Rate Study
Railroad Companies
Capital Asset Pricing Model - Ex Ante**

Component	Industry Computation
Expected Future Return, S&P 500	11.15%
Less: Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Risk Premium	8.40%
Relevered Beta	1.12
Adjusted Risk Premium	9.39%
Risk Free Return 30 Year Treasury Bonds ¹	2.75%
Projected Return on Common Equity	12.14%

¹ WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Railroad Companies
Capital Asset Pricing Model - Ex Post

Component	Industry Computation
Common Stock Returns, S&P 500 (1928 - 2014) ¹	11.53%
Less: 10 Year Treasury Bonds (1928 - 2014) ¹	5.28%
Risk Premium	6.25%
Relevered Beta	1.12
Adjusted Risk Premium	6.98%
Risk Free Return 30 Year Treasury Bonds ²	2.75%
Projected Return on Common Equity	9.73%

¹ Damodaran Online, January 5, 2015

² WSJ.com, December 31, 2014

2015 Capitalization Rate Study
Railroad Companies
Beta Analysis

a	b	c	d	e	f	g	h	i
Value Line Rating	Company Name	Value Line Beta	Zacks Beta	Thomson Beta	Average Beta	Company's Tax Rate	Debt Equity Ratio ¹	Unlevered Beta ²
Class 1 Railroads:								
A++	Union Pacific Corp.	1.00	0.98	1.20	1.06	0.38	0.15	0.97
A	Norfolk Southern Corp.	1.05	1.13	1.23	1.14	0.38	0.31	0.95
B++	CSX Corp.	1.15	1.34	1.10	1.20	0.37	0.33	0.99
	Mean	1.07	1.15	1.18	1.13		0.26	0.97
	Median	1.05	1.13	1.20	1.14		0.31	0.97
	Weighted Average				1.11		0.22	0.97
	Relevered Beta based on 20% Debt Capital Structure						1.12 ³	
	Relevered Beta based on 20% Debt Capital Structure and a weighted average Beta						1.12 ³	
Non-Class 1 Railroads:								
B+	Genesee & Wyoming	1.20	1.28	1.32	1.27	0.37	0.24	1.10
	Mean	1.20	1.28	1.32	1.27		0.24	1.10
	Median	1.20	1.28	1.32	1.27		0.24	1.10
	Weighted Average				1.27		0.24	1.10
	Relevered Beta based on 40% Debt Capital Structure						1.54 ³	
	Relevered Beta based on 40% Debt Capital Structure and a weighted average Beta						1.54 ³	

Sources: Columns a, c, and g were extracted from Value Line.
Column d was extracted from Zacks.com.
Column e was extracted from ThomsonReuters.com.

¹ Average debt-to-equity ratio over the last five years.

² Unlevered Beta = Corrected Beta/[1+(1-tc)(D/E)]; where D/E is the debt-to-equity ratio, tc is the company's 2014 tax rate.

³ Relevered Beta = [Unlevered Beta][1+(1-tp)(D/E)]; where D/E is the debt-to-equity ratio, tp is a prospective purchaser's tax rate (assumed to be 40%).

2015 Capitalization Rate Study
Railroad Companies
Capital Structure

a	b	c	d	e	f	g	h	i	j
Value Line Rating	Moody's Bond Rating	Company Name	Common Stock Outstanding (\$million)	Common Stock Price 12/31/14	Market Value Equity (\$million)	Long Term Debt (\$million)	Total Capital (\$million)	Long Term Debt %	Common Equity %
Class 1 Railroads:									
A++	NR	Union Pacific Corp.	889	119.13	105,918	11,045	116,963	9.44%	90.56%
A	NR	Norfolk Southern Corp.	309	109.61	33,918	8,919	42,837	20.82%	79.18%
B++	NR	CSX Corp.	995	36.23	36,063	9,387	45,450	20.65%	79.35%
		Total					<u>205,251</u>		
						Mean		16.97%	83.03%
						Median		20.65%	79.35%
						Weighted Average		14.30%	85.70%
Non-Class 1 Railroads:									
B+	NR	Genesee and Wyoming	53	89.92	4,796	1,601	6,398	25.03%	74.97%
		Total					<u>6,398</u>		
						Mean		25.03%	74.97%
						Median		25.03%	74.97%
						Weighted Average		25.03%	74.97%

Recommended Capital Structures for lien date January 1, 2015		Equity	Debt
Class 1 Railroads:		80%	20%
Non-Class 1 Railroads:		60%	40%

Sources: Columns a, d, and g were extracted from Value Line.
Column e was extracted from the Finance.Yahoo.com and represents December 31, 2014 closing stock prices.

2015 Capitalization Rate Study
Railroad Companies
Interpolation of Railroad Bond Yield

Yield Increment from Moody's Average Bond Ratings			
a	b	c	d
Moody's Average Rating	Moody's Average Bond Yield	Number of Increments	Incremental Increase (b/c)

Aa = Aa2	3.81%		
A = A2	<u>3.98%</u>		
Difference	<u><u>0.17%</u></u>	3	0.06%
A = A2	3.98%		
Baa = Baa2	<u>4.69%</u>		
Difference	<u><u>0.71%</u></u>	3	0.24%

Interpolated Railroad Bond Yield			
a	b	c	d
Moody's Average Rating	Moody's Average Bond Yield	Incremental Increase	Interpolated Bond Yield
Aa2	3.810%		3.81%
Aa3		0.06%	3.87%
A1		0.06%	3.92%
A2	3.975%		3.98%
A3		0.24%	4.21%
Baa1		0.24%	4.45%
Baa2	4.685%		4.69%
Baa3		0.24%	4.92%

2015 Capitalization Rate Study
Railroad Companies
Debt Yield Rates

Bond Rating	Industrial	Public Utility	Average
Aaa	3.73%	N/A	3.73%
Aa	3.81%	3.81%	3.81%
A	4.07%	3.88%	3.98%
Baa	4.71%	4.66%	4.69%

Source: Moody's Daily Long-Term Corporate Bond Yield Averages as of December 31, 2014.